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EDITORIAL:

Visual Instruction *and the* Teaching *of* Geography

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NO one can blue print today what the post war world will be tomorrow but this does not mean that plans for the days ahead should not be made. The value of these plans will be determined by the extent to which a realistic framework of thinking is used. One of the realisms of the present is the fact that World War II is being fought over the entire globe on land, on the sea and in the air. This necessitates planning for the future in terms of world unity. It requires on the part of all a fundamental working knowledge of World geography if intelligent thinking about the world of tomorrow is to be accomplished. Oceans, deserts, mountains, swamps and jungle are no longer protective barriers behind which men can live in security. The man made machines of modern warfare penetrate the most remote places.

Before Pearl Harbor few Americans had heard of Attu, Guadalcanal, Kwajalein, Cassino, and Krivoi Rog. These new names of geographically remote but strategically important spots which we hear daily over the radio, have made us conscious of the gaps in our knowledge of world geography. When we read of the floods, mud, low ceilings and rain of southern Italy we realize that "sunny Italy" like southern California has its fluctuations in weather. And the fertile plains, the desert and rugged terrain of north Africa bring to our consciousness a new concept of the southern shores of the Mediterranean. Our world of today is indeed small not only because of rapid transportation but also because our soldiers are fighting all over this spinning globe. These fighting men of ours are learning their geography first hand, the hard way. We at home must keep pace in order that we may plan intelligently for the days ahead.

The rising tempo of world events indicates that we cannot sit back on our haunches and take our leisure in study. We will be called on soon to vote, to

render judgment and to express opinions that will influence the shape of things to come. Every medium that can be used to accelerate our knowledge of world geography should be put to immediate use in schools and in public forums. Since we cannot all visit these distant lands they will have to be brought to us by pictures, by map study and by verbal description. Visual instruction is the medium to provide the quick realistic view of our world which the pressure of events demands. And since we do not have a sufficient number of trained geography teachers for the high schools, the way to break this bottle neck is by using visual instruction to provide the background which will enable social studies teachers to weave sound geographical material for instructorial purposes into the framework of their curricula.

It will be noted from the above that this is in part a plea for the teaching of more geography not only in our elementary schools but also at the high school level. The voting generation of tomorrow is the high school student of today. Theirs will be the task of reconstruction. The American high school student unlike his European counterpart, is not greatly concerned about domestic politics and is less interested in world politics. Perhaps this is due in part to his interest in the more objective things which are characteristic of the machine age. Geography has an advantage as a basis for developing an understanding of the world we live in because it is not a study of people's attitudes toward government, but rather it deals with man's continuous struggle with his environment. The geographical laws which affect the work of the plainsmen of North America are the same as those which govern the lives of the plainsmen of the Argentine. The steel works in Ohio, Mexico, Lusembourg, India, Russia and England have much in common. The science of geography, if taught in a "world gestalt" should have the same basic content of principles whether it is taught in Chile or in China, in Iran or in Indiana. The struggle of mankind with nature makes us all brothers regardless of race or creed.

Visual education through pictures has an advantage in teaching a world geography of broad application because pictures speak in a language that is universal. Furthermore, motion picture techniques such as animation, montage, flash back and double exposure, make time do their bidding and eliminate distances. Animation in particular is effective in making generalizations. Finally, this is not a static world but a world of motion. The student of global geography will need to study a geography that moves. Here is where the motion picture makes its greatest contribution. Even maps take on motion under the magic of the animationist. Those who have seen Walt Disney's *Victory Through Air Power,* know to what extent maps can be made to act.

While we are on the subject of maps it should be pointed out that many school maps show too much detail. Some maps have so many names, symbols, rivers, political boundaries, railroads, highways, colors, et cetera printed on them, that one cannot see the geography they are supposed to teach for the printers ink. Several years ago I made a study of the effectiveness of the motion picture in teaching the

geography of the Panama Canal. One of the maps used in the film was of the profuse printers ink variety. The tests showed that the pupils had learned little from it, in fact they were more confused than helped. Simple animated maps in another film were found to register. Teachers of geography welcome animated maps in the Disney style. Norman Bel Geddes' relief maps in perspective, which we have seen so frequently in Life, show the way to a new kind of visual teaching tool which expresses the spirit of the air-plane-view age. Color helps to distinguish geographical features in maps, but when a student remembers little else about Kansas except that it is a pinkish elongated sort of rectangle in the center of the United States his knowledge of the geography of Kansas is indeed meagre.

The well known documentary film, *The Plow That Broke The Plains,* shows what happened to the geography of certain sections of Western Kansas when man and his plow turned the plains into a Dust Bowl. This film and *The River* taught in dramatic realistic manner the need for conserving our top soil. Here are two examples of how the film can be used to teach a kind of geography that is not to be forgotten soon. The need for good films to teach world geography is great.

This March issue of EDUCATION has been designed to emphasize the contribution which visual instruction is making to the teaching of geography. It also points to the future by indicating how visual techniques can implement the extension of our geographical knowledge. The contributors of the articles were selected with a view to showing how the several types of visual aids may be effectively employed. In particular we are happy that the lead article, *The Motion Picture in Teaching World Geography,* is by Wallace W. Atwood, President, Clark University, who received The Distinguished Service to Geography Award for 1943 of the National Council of Geography Teachers. In planning the March number, the Editor received helpful advice from Dr. Atwood, which is gratefully acknowledged.

"It is an old saying that experience is the best teacher. One may, indeed, go beyond this and say that experience is the only real teacher. If we wish to learn about regions that we have never visitied, we study maps and pictures and verbal descriptions of these regions, but our study is quite futile unless we are able to translate these maps and pictures and words into our own experiences."

—William C. Bagley, in *Visual Education*
(Keystone View Co., 1920)

The Motion Picture *in* Teaching World Geography

By WALLACE W. ATWOOD

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EACH portion of the earth's surface where people are living is the scene of a vital human drama. The bold, rocky coasts of Norway, where fishermen risk their lives every day in the year, the lowland plains of China or that of France, with their peaceful agricultural scene, the valley of the Rhine among the rugged mountains of Switzerland, where transhumance colors many days in the calendar, the hill lands of New England with their softened contours, mill towns and summer homes, the heavily forested terrain of Canada, dotted with lumbering and mining camps, the grasslands of Russia, with their nomadic herdsmen, the dense jungle of New Guinea, where primitive head-hunters live, or a desert oasis in Argentina, with its luscious grapes, provide the physical settings for dramas that are real and vital to different groups of people who live in those places. There they have their homes, their families, their schools, churches and playgrounds. There they have their work. The air, with its characteristic fickleness, blows warm or cold, brings clouds or clear, blue skies, rain, snow, or hail, and thus provides the atmosphere of each scene.

These human dramas are constantly in progress on the earth. They reflect today, stages in culture ranging from the most primitive village of nearly naked Bushmen, still in the collection stage, to the highly complex and artificial life of a metropolitan district. Two-thirds of the 1800 million inhabitants of the earth are living in very simple homes, with little furniture and without any modern labor-saving devices. Millions do not use electricity or gas. They have never touched a telephone receiver. A stream or a shallow surface well, mayhap without a pump, is their source of the life-giving water essential to all. That which is furnished to some who simply turn on a faucet in their homes, is brought to others in great jars carried on the heads of women. A donkey or a camel in parts of Egypt, a dog-team in Alaska, a yak in the high Himalayas, or a beautiful prancing steed on the sands of Arabia provide to some their most modern means of transportation. Hundreds of millions have not yet used an automobile, a locomotive or an airplane. The radio is still unknown to millions, and for the vast majority of the more primitive two-thirds of this human family, all formal schooling is unknown.

The world is not the same "where'er-you-go." Comparatively few people live with all the conveniences, com-

forts and service that we have in this country. However, the world is full of interesting scenes. Many families, in the simplest homes, are just as happy as those with all the comforts that modern science and engineering have provided. Joyous voices of little children bring pleasure to both. How can we, without a long period of residence in each inhabited portion of the earth, hope to become acquainted with the present living conditions, actual occupations and customs of people in far-away lands?

Everywhere one goes the problems of providing food, shelter and clothing occupy the attention of most adults. Agriculture is by far the most widespread of all human occupations and engages the time of more people than any other kind of work. In certain areas most of the people are pastoral in their pursuits and in some they are fishermen or lumbermen. At the few places where science and technology have made great headway, and men have learned how to use the sources of power and the mineral wealth found in the earth deep below the soils, great factories and mills have been erected. There men are building huge skyscrapers, bridges, ships, railways, tanks, automobiles, air planes and thousands of modern gadgets useful to man. We live in a world of remarkable contrasts.

In geography we are concerned chiefly with the world of today and turn to history to better understand our world. Each cultural stage leads to another and the present, which we aim to understand in geography, represents but a passing scene in the development of a long human drama. We should look at modern geography, a study of the present, as one chapter in human history, and history as a succession of geographies.

More than half of the land surface of this planet is today a wilderness with, on the average, less than two inhabitants per square mile. Thousands of square miles in those sparsely settled parts are without any permanent human residents. Why have those sections been avoided? Why have the vast majority of people become crowded into three areas, Western Europe, eastern North America and the monsoon lands of Asia? In but few other areas is there any great over-crowding. Nearly two-thirds of the human family live in the monsoon lands of southeastern Asia and the neighboring islands.

How can we bring vividly into our classrooms these many scenes? As yet we have not done our best. At some stage, before the days of formal schooling are over, we should introduce into the study of geography the elements of action, motion and change. Perhaps they can become a part of the new plans that are being made in many sections of our country for a course in World Geography at the high-school level.

The art of the most skilful writers, supplemented with pictures and diagrams, cannot bring to us sufficiently vivid pictures of the lands and peoples beyond the seas. They fail because they do not give us the motion, changes, actions and natural sounds that characterize the various scenes. They fail because they are static when the life we would study is dynamic. No subject in the entire curriculum of education needs the modern sound-motion picture as does geography. No subject lends itself so naturally to mod-

ern photography as does one that deals with the world of action about us today. For those phases of the study which should be illustrated and cannot be photographed, the modern art of animated drawing lends itself with remarkable effectiveness. The day has finally come when with sound moving pictures from all parts of the world, supplemented by animated drawings, we can bring into our geography classrooms illustrative material far superior to anything we have yet used. This should lead to far more intelligent interpretation and more sympathetic understanding of affairs in distant parts of the world. It should make geography mean much more than it does today.

Electric phenomena were exhibited in college classrooms, not very long ago, as interesting and entertaining features in a course in physics. Some then said that electricity would "never be of any practical value." The art of photography was first used chiefly for pleasure and looked upon as a curiosity. Later it came to have great practical value in the scientific study of the heavens, in microscopy, with the X-ray in surgery and medicine, in industry and sport, through the analysis of motion and in hundreds of other ways. It is no longer looked upon solely as a source of amusement. The first automobiles were pleasure vehicles and the first airplanes were playthings of no practical value; what are they today?

The moving picture with natural sounds and colors has been demonstrated a delightful source of entertainment. Its ultimate and greatest contribution to the world will be in education. During the present world conflict moving pictures have been used as never before in training men in the Army and Navy. Technical movies have taught men and women entering upon work in war industries, more quickly than was thought possible, the various processes involved in the manufacture of the articles essential to our armed forces. Other nations, especially Russia, have profited by the tremendous power of the moving picture in educating those engaged in the development of industries.

There now lies ahead of the allied and associated nations the largest educational responsibility that has ever been faced in the history of this world. The people of each country must be prepared to live in a somewhat changed world and to develop on this earth a cooperative civilization. We now know that an important happening in any part of the world will have repercussions in every other part of the world. We know that isolation for any nation is impossible. We know also that the people of the United States of America must from now on take a large responsibility in international affairs. That all means we must become well acquainted with the physical features in the landscape, the climate, soils and all natural resources, occupations, living conditions and ideals of the people in the different parts of the world. In the post-war era when it will be possible to spend the week-end in London or Paris and be back at work on Monday morning, when we may speak almost at will with friends in Australia, China, Norway or Brazil, we cannot think of the world as very large.

Intensive studies in geography, history, economics, and social customs,

such as are now being carried on by Army trainees, stationed in the American colleges and universities, are helping to broaden the horizons of instructors and students. Our men who are in uniform and others who are representing us as civilians in distant parts of the world, are gaining a world point of view. All high schools and colleges should undertake to prepare the largest possible number of our citizens to take an intelligent interest in world affairs and meet their responsibilities as leaders shaping public opinion on international relationships. All enlightened people know that there are but a few powerful nations, and when the fighting is over there will be even fewer nations to guide human affairs on this planet. We must be prepared to take our part in this program. We are engaged in a global war. The peace that is to follow must be global also.

When the fighting is over our national government will need more representatives in distant parts of the world than ever before. Those representatives should be broadly trained in world affairs and familiar with the languages in use where they must serve. Businessmen will look for new markets in far-away places, and they will need well-trained representatives. Bankers will be faced with problems of placing capital at work in foreign districts and this cannot be done wisely without an intimate knowledge of geographic and economic conditions in those lands. No one will be able to understand the news of the day, converse intelligently or take any very large responsibility who is not broadly educated in world affairs. We are moving into an age when international relationships will be more important than ever before.

Since geography is dealing with the world at work and the adjustments people make to their environments, the modern motion picture is an ideal instructional aid. Miscellaneous moving pictures cannot be used very effectively. A series of films must be taken and arranged to carry out a particular course of study. They must not be selected just for their entertainment value. They must not divert attention from the objectives of the course. If we are studying the life in the pasture-lands or farms of the world we want true and carefully prepared pictures that will give correct ideas of how the shepherds, herders or farmers are carrying on their work in the different parts of the world. The pictures, the sound strip narratives, texts, classroom discussions and tests should be synchronized.

Fishermen at work far off at sea may be photographed and their voices recorded. Students of other lands may hear the Swiss people sing as they call their cows from the alpine gardens at evening time, and again when making their butter in their rough wooden shacks high among the mountains during the summers. Merchants loading vessels to go to far-away places can be recorded on the moving picture films. The various means of travel in the different parts of the world, from the simple carts or rickshas, wheel barrows, dog sleds, sedan chairs, donkeys, camels, yaks, on to the more modern means such as auto-busses, railroads, and airplanes can be shown helping people to meet their transportation problems.

The construction of highways, such

as the new road to Alaska or the much needed links in Central America to complete the overland route from the Rio Grande to Chile or Argentina, should be brought before us. The conquest of the ocean and the conquest of the air provide fascinating subjects for photography aided by animated sketches.

Certain phases of geography and most historic scenes of significance that cannot now be directly photographed, can be reproduced by animated drawings. Scientific problems, which cannot be shown through direct out-door photography, can be illustrated with remarkable efficiency by artists. The cartoon with motion, which has served delightfully for amusement purposes, has for its ultimate and greatest contribution to mankind an educational power. Films, such as "Corn" and "Malaria," prepared at the Walt Disney studios for instructional purposes, demonstrate that with the animated drawing the intricacies of scientific studies can be portrayed vividly.

Just as a well prepared diagram in the text has greater power than the printed word or a photograph, so the animated drawing, in many instances, can surpass in educational value photographs taken directly with a camera. Indeed this new medium of expression has no limit. The artist can surpass the telescope or the microscope and bring before us the most delicate parts of flowers, of insects or machines. He can take us inside of machines. He can bring to us the celestial bodies millions of light-years away or place before our eyes a moving picture of the whole Solar System with the earth turning on its axis and revolving with the other planets around the sun. With the power of the pencil he can show more vividly than words or still pictures have ever shown the story of day and night, the changes of the seasons, the coming of an eclipse. He can take us in imagination to the very surface of the moon or close to Saturn or Jupiter, or a spiral nebula. He can show the ships passing across the seas, carrying produce from areas of surplus production to areas of want and scarcity.

The animationist has developed a medium of expression of immense educational value. Not only should it be used in protraying with the power of a diagram much that cannot be otherwise photographed, but it should be used in making maps. With animated maps the spread of population, the migrations of people, the expansion of crop producing areas, the work of irrigation, the clearing of forests, the conduct of both domestic and foreign trade can be made more real and effective than through any other means. Animated pictorial statistics make dry, dull facts interesting and fix the essential facts in the mind.

With a full series of well-prepared sound moving pictures, with carefully edited narratives on the sound strips, using animation in sketches and maps, with frequent tests and class reviews, a course of instruction can include four or five times as much as can be taught in any other way. Concepts can be more clearly transmitted. Discussion pediods can be used to develop sound judgments and intellectual power in this field of knowledge. Such a course should broaden the horizons of the students and develop a sympathetic understanding of world problems, preparing young people to assume their responsibilities as citizens of this world.

The Motion Picture *and* World Understanding

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WHEN teachers from many countries were enroute, in the summer of 1937, to attend the biennial convention of the World Federation of Education Associations, the war drums were already sounding at the Great Wall of China. The attack of Japan at Peiping Bridge on July 7th of that year was as sudden as the one at Pearl Harbor three years later and came as a strange curtain raiser for the great meeting that had long been planned for Tokio. But despite that fact that the grim war God was already on the march, the teachers from all over the world were true to their great traditions and squarely entered vigorous protest by adopting a program of peace for the schools of the world. Seldom has a challenge been met more squarely or promptly. In meeting it the World Federation was true to its determined policy to promote peace through the school that it has maintained from the beginning.

But in order to better understand this broad work for peace it may be well, at this point, to make a quick survey of what has been done to win the war, by educators in the United Nations and especially by the educators of America. In this country the conversion of industry to the demands of war has not been any more complete and remarkable than the conversion of education to meet Mars on the field of conflict. This was not because the teachers wished it so, but because they saw instantly the situation created by Hitler, Mussolini and Hirohito and they met it, head on, without the quiver of an eye lash. "The world will long remember," as Lincoln said at Gettysburg, "what they did here" in the schools and colleges of the country.

That first — things — first job of putting the schools in shape to help win the war has been done and now another job of equal importance is right on the horizon, as Kipling's dawn, "coming up like thunder out of China cross the bay." That is the job of so enlightening the world that it can gain a peace of justice — and then hold it. This is the momentous era, fraught with the very issues of life or death for mankind, and there is no escaping it. The only thing to be done is to meet it, squarely with head-on determination, just as the issue of war has been and is being met. And to the eternal credit of the teachers of the world, they are preparing to meet it. And here is what they had to say — as they looked squarely in the face of war — in the capital of Japan —

about the need of understanding and peace in the world.

By one of those unexpected turns of the wheel of Fate, this writer, a publishing man all his life, found himself cast in the part of spokesman for the teachers in this world drama. The way it all came about is the fabric of the narrative, so it needs to be told. Dr. Paul Monroe, president of the World Federation, on the nomination of Dr. Stephen Duggan, had invited the writer to make an address before the Convention on "World Understanding Through the Schools of the World." His qualifications, probably were these: for years he had been publisher of *The World's Work,* always deeply interested in Education through its great editor, Walter Page, — he had just served on one board of judges that had made the Raphael Hermann award of $25,000 to the late David Starr Jordan of Stanford University for the best plan to promote peace through the Schools of the world, (there were over 2,000 plans submitted in nine different languages) and he was to be in the East, during the Convention, as a Commissioner of the New York World's Fair.

The August night when the peace program was to be considered was as serene as the old temple at Nara. Dr. Paul Monroe, in a white Eton coat, presided with a clear-cut precision that matched his appearance. As he stood before the thousands of teachers from twenty countries (there were over 300 from the United States) he seemed to be — and was — the best in education and vision of both East and West; for all knew that as Director of the Boxer Indemnity Fund, he had done more than any one else in educating the youth of China who were leaders in the heroic struggle just beginning. His address, as Chairman, was strong and clear in its challenge to Education in helping the world find a way of peace on a basis of fairness to all the children of men. He introduced, as the speaker of Japan, Count Kabayama, a graduate of Amherst and a member there, of the old Gamma Chapter of Psi U. He offered a plan for establishing cultural institutes to interpret to each other, both East and West, but the war drums in China raised some doubt as to whether such organizations could build any real understanding among the peoples of the world.

When the writer was presented he said at once that what he had to propose was a plan that had been selected from a world-wide competition among educators as being one most likely to result in developing world understanding in the schools of the world, about the world. The reason the Board of Judges — of which he had been a member — had chosen it unanimously from over 2,000 other plans, was because it was designed through visual education in geography and basic human economics, to build up a broad understanding of the relationships and interdependence among peoples and nations. It was formulated by one of the recognized educational leaders of the world, the late David Starr Jordan, formerly President of the University of Indiana and long president of Stanford University; and, moreover, the whole procedure for the world-wide competition had gone forward, in great degree, under the direction of the very World Federation which was then and there holding its international convention. The address, in brief, was the presentation of the David Starr Jordan plan which was based, primarily, on the use of educational motion pictures in the

schools of the world — always in the language of the country where the schools were located.

It is interesting to state here that in this address, seven years ago, the writer referred to two men — who are contributors to this issue of *Education* — as broadly experienced educators to collaborate in carrying the Plan into effect. In one place in the address reference was made to "the use of motion pictures to teach human relations, basic economic facts, the whole range of what that inspiring teacher, Dr. Wallace Atwood calls human geography." In another plan, I said, "Shortly before I left New York in June one of the Foundations had just completed a study of visual instruction, directed by Dr. F. Dean McClusky, an acknowledged leader in visual education, with the cooperation of Henry James Forman, long editor of the *Northern American Review*."

Before the Convention adjourned — and while the war in China was gradually spreading — the Governing Board of the World Federation unanimously approved the World-Wide Plan, outlined in the address, and placed it on the permanent program of the Federation. There it stands, ready to be put to work in the United Nations — and ultimately in all countries — when Victory in the War is won and ways and means are developed to get the Plan into operation. That subject — to show how much alive it is — was to have an important place on the program for the World Federation's convention last May in Montreal, and the writer had accepted an invitation to give an outline of the progress made since the Plan's adoption in 1937; but, at the last moment, because of the War, the Convention was postponed to a more appropriate time.

But in these seven years, really remarkable progress has been made in all countries, in the whole field of visual education. The result is that today the educational motion picture is accepted by teachers everywhere as a tested means of speeding and fixing instruction in nearly every branch of the school curriculum. Much of this result is due to what governments have done in using motion pictures in training for industry and for the armed services. The Office of Education, under the alert guidance of Dr. John W. Studebaker, has been a leader in all this wide use of motion pictures. General Frederick Osborn, with his highly competent assistants, Dean Spalding of Harvard and Colonel Beukema of West Point, have been making and using hundreds of pictures for the Army and Air Services; and the Navy with Dr. Barker of Columbia, strongly supported by Secretary Knox and Under Secretary Forrestal, has kept fully abreast of all that the Army has done. And this is true of Man-Power, under the direction of Dr. W. W. Charters of the University of Ohio; and the list could be extended to include almost every department of the Government.

The last great department to join the Visual Education colors, as a means to promote understanding, has been the State Department, under Secretary Cordell Hull and Under Secretary Edward Stettinius. The latter is one of the most enlightened and energetic promotors of the wide use of this modern agency in the entire country. This is a matter the writer knows about at first hand. Three years ago when he was collaborating with Dr. Studebaker in getting the first fifty demonstration pictures for training workers in the war industry at work, Edward Stettinius, then doing his great work in Lend-Lease, was an in-

dispenable ally in getting the pictures produced and at work. Since then, the pictures have done such an amazing job in the vocational schools and in industry, that over 300 training pictures have been made, covering most of the mechanical skills and techniques. Mr. Stettinius is now causing the wheels to turn swiftly in the State Department and the results will shortly be in evidence. Already an able Educational Consultant for the Department has been appointed in Dr. Greyson N. Kefauver, Dean of the School of Education of Stanford and plans are afoot in all parts of the world.

The Government seems to be prepared to continue the policy it has been following through many of its agencies and aid in the distribution — and in production if it is necessary — of educational motion pictures to build understanding as an insurance of a world organized for peace; but there are many of the leading educators of the country who believe that the Schools, as the source and center of power in our democracy, should be free from control of the Federal Government.

As this magazine goes to press two powerful movements are concentrating on this urgent question:

How can a world organized for peace most surely develop the understanding and knowledge on which it must rest, *in the shortest possible time.*

One of these movements is headed by the University of Chicago and its dynamic president, Robert Hutchins, and includes the Brittanica American Company, the Erpi Class Room Pictures Company, Simon and Shuster and Henry Luce of Time, as publishers, together with a group of influential business men.

The other movement is within the Motion Picture Industry itself, with several powerful producers forecasting possible plans aimed at the development of the world-wide educational market.

As between these two mighty contenders, there are some judicious observers who hold that the United Nations — through the proposed International Office of Education, now taking form, will settle the issue as they are already settling the urgent issues of food, of reconstruction and of a common force to maintain peace and provide themselves for the production and distribution of educational motion pictures, (under the direction of leading educators in every country) as the most effective means of building understanding and peace in the world.

One thing seems clear and that is that, at long last, Visual Education is coming into its rightful place as a great agency of instruction. The motion picture, the airplane and the radio, the three modern means of education, transportation and communication, are now fully under man's control and they are to be used to build a better world of peace and prosperity.

No gift of prophesy is needed to see that this world is now in the making. Millions of men in the land, the sea and the air forces, trained in their war service in great degree by the motion picture, are seeing that world dawning on the war horizon, and when the war is won they propose to see that it becomes a reality; and their united power in education, in industry, in labor, in religion and in every field of living will be supreme. They are the architects of the new world that is to be.

Air World Geography

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THE world is a globular mass of land, water and air held together by the forces of gravity. The earth, which is the nucleus of the world, is encased in an ocean-of-air of unknown depth. By the invention of the airplane this vast ocean has become a world common, offering to the vehicles of the air, speed and freedom of movement which were impossible to achieve through any other medium of transportation and communication. Unlike the oceans of water, the air ocean reaches the threshold of every home on earth. It is a universal highway free from the obstructions of earthly barriers—a highway without mountains, deserts, tunnels, bridges or bottlenecks of traffic. These facts are of such tremendous importance to civilization that the era which we are now entering has been acclaimed the Air Age.

Our planning for the Air Age needs to be based on global geography. Our attitudes toward world relations, peace, freedom of the air, air power and many other vital problems will be founded on our understanding of geography. Let us make sure that the geography we know is Air-Age geography.

Geography is merely the expression of the ideas which men have about the world in which they live. There is little geography which is not subject to change from time to time as new ideas develop. Under the impact of air transportation, ideas of the world are changing rapidly. Therefore, the geography which we need to learn for living in the Air Age is quite different from the geography which was taught in school before the advent of the airplane. Our conceptions of the world need to be in harmony with the global outlook of those who fly the international airways.

How Flight Has Influenced Geography

The direct routing of airplanes requires that we understand great-circle courses rather than the more circuitous routes followed by sea-going vessels. Alaska, located on the great-circle route from the United States to the Orient, has become a new international gateway. Greenland is en route to Moscow and the Middle East. Kiska, rather than Pearl Harbor, is a vital point on certain trans-Pacific airways. Pilots, returning from world flights, talk of Gold Coast, Eritrea or the Himalayas much as yesterday's tourists might discuss London, Paris or Shanghai. These places have recently come into prominence because of the establishment of international airways, while the better-known large cities owe their existence to the development of sea commerce.

The high speed of flight is changing

our ideas of the relative importance of distances in geography. The Atlantic Ocean has become a winding river, easily bridged in overnight flight. This transoceanic crossing has been made thousands upon thousands of times during the past year. The Pacific Ocean, spreading half way around the earth, can be traversed in little more than a day. In the air world, the fundamental measure of distance is hours of flying time rather than miles of surface travel.

The demands for light-weight materials, growing out of the needs of aircraft and air-shipped commodities are creating a new geography of natural resources. The locations of places where bauxite is found are becoming as important as those where iron ore is mined. Magnesium, beryllium and plastics are assuming great significance in this new era.

The universality of airplane travel has made the study of continental interiors equally important to the understanding of sea-coast geography. The airplane has created many new and exciting possibilities for the expansion of the habitable areas of the globe. Remote spots on the earth, heretofore reached only by llama, mule or dog teams, are now at our doorsteps. We need to learn what these places are like, who the people are, their philosophy of life, government, family, customs and language.

But these new ideas of geography are only preludes to new concepts of the relationships among the people of the world. In the air world, Indians, Chinese and Russians are American neighbors. Traveling over the new airways we may meet people of all races, colors and nationalities. In the course of a few days air travelers can visit with the dark-skinned natives of the Congo and the bronze-colored people of the Fiji Islands. The Eskimos of the arctic region and the Indians of the Bolivian plains are equally accessible.

Until the advent of the airplane, Americans had never really known the people of the Far East, the Middle East, Russia, the Polar region or Africa. Their customs, standards of living and languages were foreign to those who were brought up on Latin, French, German or Spanish. Americans had been a part of western civilization. The eastern world of India, China, Siberia and Oceania were far away, almost mystical places, visited only by tradesmen and missionaries. Europe was America's closest neighbor.

The reasons for this limited relationship are attributable largely to the peculiarities of sea transportation. Our forefathers migrated across the Atlantic from Europe. Communication across the Atlantic to the "old country" became relatively rapid and inexpensive. Four days to Europe and two weeks to the Orient had been the fundamental equation by which understanding among people was determined.

WORLD MAPS

These relationships became so fixed in the minds of Americans that they served as a foundation for our ideas of geography. To illustrate these ideas we used certain kinds of world maps. But maps are only man-made pictures of the world. The ideas which we have about our world determine the kind of picture which we will draw.

The Mercator Map

Shortly after Columbus landed in the West Indies, a man by the name of Mercator drew a map which has been known by his name ever since. This map was originally drawn to meet the needs of navigators of sailing vessels on their trips around the world. But for over four centuries this map has served as a foundation for understanding world geography and the relationships among peoples. The Mercator map is not a true picture of the world. It is primarily a mathematical device used to simplify the problems of sea navigation. The Mercator projection is still used, along with the Lambert and gnomonic projections, for air navigation. However, this fact should not influence us in the selection of maps which are to be used as the basis for study of social, economic and political problems. We need not confuse the problems of navigation and geography, for certain instruments are needed in one case which are entirely unsuited for the other purpose.

It is possible to show an accurate picture of the world only on a globe. The surface of a globe cannot be projected onto a flat map without distortion. Since a globe is not a convenient thing to carry around and since it cannot be printed in school books, flat maps are substituted.

Map makers decide how to draw flat maps so that the distortions will not mislead us in our understandings of the world. In determining which distortions to allow in making maps, men have been guided by the use to which the maps were to be put. Generally, the distortions have been arranged so that approximately true relationships could be seen on a flat map among those places and in those regions of greatest importance. These regions were determined, to a large extent, by the means of transportation existing at the time the map was drawn.

Obviously, map makers who lived in the days when transportation was chiefly overland or by sea could not portray an air world. In those days distortions were allowed near the arctic and antarctic zones simply because no one ever traveled in those ice-bound areas. The Mercator projection is, therefore, a map drawn by men who had never heard of air transportation. It is a map designed to be used in a sea world, when relationships among people were determined by the routes of sea-going vessels.

The Mercator projection is very misleading in many respects. For example, Greenland appears to be much larger than the United States. Actually, if you look at it on a globe, you will see that it is much smaller. China is shown as lying across the Pacific Ocean from California. But actually the direct route from New York to Chungking lies directly over the North Pole. If we base our Air-Age attitudes and planning on the Mercator map we will certainly find ourselves in a serious dilemma.

The Hemisphere Map

Sea-world maps have caused many ideas and attitudes to develop which are fundamentally wrong in an air world. One such idea which prevails in the minds of many people is that this world is divided into eastern and western hemispheres. Nothing could be farther from the truth. It is simply an idea born in an age when the relationships among people were determined by the separation of oceans.

This idea is a very poor one for people to have who live in the age of flight and it could lead to serious consequences if not disaster for the United States and its neighbors.

In order to express this old sea-world idea, many maps since the days of Mercator have been divided into eastern and western hemispheres. The western hemisphere was separated from the eastern hemisphere on one side by the Atlantic Ocean and on the other side by the Pacific Ocean.

These were convenient separations of the world when all trade and communication were by sea. In those days you would have sailed eastward across the Atlantic Ocean or westeward across the Pacific to go from the western to the eastern hemisphere. No one really much cared where you would go if you proceeded north from Canada or Russia. No one ever went that way except a few courageous explorers.

In the air world, however, bombers and transports fly across the arctic region as readily as ships sailed the oceans. These new routes have changed the relationship of these hemispheres, so that now we must revolve them until they touch at the North Pole. The position of the hemispheres in a map showing this new relationship is quite as accurate as a map on which the hemispheres were placed side by side. But the "eastern" hemisphere is now north of the "western" hemisphere. To go to Russia, which was in the "eastern" hemisphere, we would fly north from the United States, which was in the "western" hemisphere. We are saying that east is north of west. This is actually true, but the use of old sea-world terminology makes it a very confusing statement.

The ability of the airplane to fly in any direction regardless of geographical conditions has made meaningless the idea of hemisphere. In the Air Age the world is "one place." It is a unit that cannot be divided up into arbitrary parts. This is a new idea on which our Air-Age attitudes should be based.

AIR MAPS

North-Polar Projection

In order to express this idea, as well as to show the importance of arctic air routes, map makers used another picture of the world called the North-Polar Projection. This was one of the first Air-Age maps.

The North-Polar projection has advantage over many other maps in presenting a picture of the world of the Air Age. This map shows how the large land masses of the earth cluster around the Arctic Ocean. On this map the Atlantic Ocean becomes a rather insignificent body of water and the Pacific Ocean takes on its true importance as a vast area spreading half way around the earth. From this map we can see that the shortest and most direct routes from the United States to Russia and China are not via the Pacific, but rather almost entirely overland by way of the arctic region.

Since we are using maps to express ideas about the Air Age, we need to go one step further and eliminate all continental shorelines, for air is a universal ocean in which there are no barriers or borders. A North-Polar projection which shows merely the names of important cities illustrates the idea that all places, regardless of their relative continental locations, are equally accessible by air.

The North-Polar projection, how-

ever, also is merely an expression of an idea. In this picture the North Pole has been made the point from which other parts of the world radiate. But the North Pole is no more the center of the world than any other place on the surface of the globe. The distortions on the North-Polar map are very pronounced in countries below the equator, such as South America, Africa and Australia.

Then, too, in the case of the North-Polar projection, the shortest routes between places in the world are straight lines only if they pass over or near the North Pole. Thus a straight line between New York and Capetown on the North-Polar map passes over West Africa, while actually the shortest route lies entirely over the Atlantic Ocean.

United States-Centered Map

The United States-Centered Map eliminates some of these difficulties and helps to clarify the new ideas of world relations for Americans. This map is also a polar projection, but instead of having the North Pole as the center, or pole, this map uses the geographical center of the United States as the center of the world. Therefore, on this map the shortest, most direct routes to every place in the world from the center of the United States are shown as straight lines. We can be quite certain that any attitudes which we may develop by studying this United States-centered map will be reliable for planning our Air-Age relations with our neighbors.

The "eastern" and "western" hemispheres have completely disappeared on the United States-Centered Map. It would take expert cartographers to draw the lines which have heretofore separated the "eastern" and "western" world.

Not only are the old hemispherical ideas eradicated, but eastern and western civilizations get rather badly mixed up. It is difficult to visualize where the Orient begins and the Western world ends. Under the impact of flight the world has become a unit in which integration rather than separation must govern our basic attitudes. This map expresses this Air-Age idea.

The directions of east and west, so familiar to those of us who were brought up on the Mercator projection, are difficult to point out on this map. West actually follows the elliptical equator in a clock-wise direction. East is in a counter-clockwise direction.

The United States-Centered Map suggests new ideas in relation to the routes over which we go in getting from the United States to other places in the world. For example, in the days of ocean transportation people traveled from New York to Calcutta, India, by way of the Mediterranean Sea, Suez Canal and the Indian Ocean. In war time our ships had to go around Capetown or Australia. But the direct air route from New York to Calcutta lies over Canada, the North Pole, central Russia and China. The air distance is practically half of the war-time sea distance.

Would you believe that St. John's Newfoundland was on the direct route to Tunis in North Africa; or that Fairbanks, Alaska was on the way to Shanghai, China; or that Denver would be a convenient stopover between Tokyo and the Panama Canal; or that Berlin and Chicago are separated by arctic wastes and very thinly populated regions; or that Natal,

Brazil is on the air route to Capetown, South Africa; or that to go from San Francisco to Moscow the quickest way would be over Canada and Spitzenbergen; or that Hawaii, Midway, Wake, Guam and the Philippines were thousands of miles off the air line to Japan and the Orient? You should believe these facts. It is quite true that these relationships have always existed, but they were meaningless until the airplane came along to make these routings practical. We must give these facts a generous place in our minds, for only upon them and others like them can we build a solid foundation for worthwhile attitudes in this Air Age.

GLOBES

Since we can secure an accurate visualization of the world only by using a globe, we should make more use of this device than has been the practice in the past.

A globe is a scale model of the earth designed to express certain ideas or physical conditions. Many such models have been created since the time of Crates (150 B. C.) who was said to have built the first globe. The oldest terrestial globe extant was constructed by Martin Behaim of Nurmberg in 1492. These early globes were designed primarily for the purpose of picturing the known habitable lands of the earth. They were merely expressions of existing ideas of the world and were especially helpful in getting people to look upon the earth as a spherical, celestial body, rather than a disk or wafer.

The tremendous interest which followed in the wake of the voyages of Columbus, Magellan and the Polo brothers, stimulated the use of globes for the study of physical and political geography. Globes were designed to show the boundaries of continents, countries and colonies, the routes of earthbound transportation, topography, vegetation belts, climatological elements and meteorological conditions. Since no single globe of reasonable size could be constructed to show all the geographical, political, economical and ethnological features of the earth, it has been necessary to design many different types of globes, each for a specific purpose. The Air Globe is the most modern addition to this long line of world models. Its purpose is primarily to illustrate Air-Age relationships among peoples of the earth and to assist in the visualization of the universal character of global air transportation and communication.

The Air Globe is a representation of the world of the Air Age. It portrays the boundaryless character of the universal ocean of air. It illustrates the fact that, when we travel and communicate by air, all place and all peoples are equally accessible. It provides the means by which we can visualize the great-circle relationships which exist among peoples of the air world, illustrating the essence of air—unity, universality and freedom.

The most outstanding characteristic of the Air Globe is its lack of earthly geographical features. The outlines of continents, mountain ranges, rivers, arctic wastes and other physical properties of the earthbound world have been eliminated. Such barriers, geographical elements and boundaries are of purely academic interest in the Air Age—and may tend to obstruct straight thinking in regard to the problems of the air world.

The lack of relationship between air and earth is felt the instant we leave the ground. We have all experienced that sense of detachment and freedom as our plane drones at a seemingly leisurely pace through the sky. In fact, when flying above the clouds we are so removed from earthly considerations that we must check our position by radio and then refer to a map of the earth in order to determine whether water, land or desert lies beneath the clouds.

On the Air Globe only the names and locations of places are shown—places where people make their homes. Whether these land marks take the form of islands, continents, peninsulas or isthmuses is of little importance in establishing the relationships which exist among peoples in this Air Age.

CONCLUSION

The impacts of flight on society, international organization and relationships among peoples are so vast as to require the development of new attitudes toward the world in which we live. Undoubtedly, the suggestions which have been offered are only preludes to the general overhauling of curriculum content which will be required if we are to educate youth in the ways of life in an Air Age.

Teachers in America have a great opportunity to lead the way in the enlightenment of the world to the proper use of air. America, the birthplace of flight, is now recognized as the leading country in the development and manufacture of airplanes. Educators have a particular responsibility to see that along with the advancements which are made in engineering and the art of piloting, we also move forward in our ability to understand the sociological consequences of the act of flying and direct the use of air toward the creation of a good life in the Air Age.

"The essential oneness of our world is rapidly emerging from the old territorial partitions, and from the point of view of war there is no sacrosanctity in continents, no security in oceans, no safety behind rivers and mountains. The war is burning that fact into our consciousness with a force which no wishful thinking could undo, and calls for a fundamental reconsideration of our international outlook and practice."

—Page 6 Woodrow Wilson Foundation Pamphlet

Today's Geography *in a* Museum

By GRACE FISHER RAMSEY

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"MISS Jepson, what does my brother mean when he writes from one of the South Pacific Islands that 'the ridges and cliffs on this island are knife-edged and rise abruptly from the sea? Can cliffs and ridges be knife-edged?" "My father is in Guadalcanal," said Thomas, "and in one of his letters he writes that some of the natives there are again raising plantations of cassava and taro. What do these plants look like?" "My brother, a pilot now in New Guinea," added Jane, "writes that from his airplane he can see a chain of mountains extending like a backbone along the length of the island with snow covering six high peaks." "We are not certain just where my uncle is," said John, "but he wrote that the natives in his region use double outrigger canoes and live in houses that are built of bamboo raised up on high poles above the ground. How I wish I could see one of those houses and a real double outrigger canoe!"

These and many other questions provided the motivation for this geography class in one of the public schools of New York City to visit The American Museum of Natural History. How can such a museum aid in the teaching of geography, a subject which the current war news demands shall no longer be a "step-child" in our curriculum? Let us follow this class to see how the children's questions are answered.

Upon the arrival of this group at the Museum the children go with a Museum instructor to the Whitney Bird Hall which represents the Pacific Ocean reduced to a small compass, with the observer in the middle viewing in every direction scenes on various islands throughout thousands of miles. The children stand in front of the habitat group of one of the Marquesas Islands. The vantage point of this exhibit is at a height of two thousand feet and below is the far-famed valley of "Typee," the locale of Herman Melville's romance of the same name. Here they see several series of knife-edged ridges separating the valleys all covered with heavy tropical forests and can readily understand how such a terrain resulted in isolating the original Polynesian inhabitants into a number of more or less hostile communities. As they discuss this scene they realize more than ever the difficulties our troops must encounter in attempting an invasion of such a region. The beautiful white Fairy Tern which lays its single egg on rough bark or in a crotch, also attracts their attention because of a recent picture in a newspaper showing an American soldier holding his tommy gun with a young Fairy Tern sitting on the end of it.

Our class now examines the habitat

group which depicts the southeast end of Guadalcanal. In the foreground the children can see native plantations of bananas, coconut palms, papaya and breadfruit, with cassava, elephant-ear taro and sweet potato vines thriving in a new clearing.

"I never expected to see anything like this!" exclaims Thomas.

"Do you suppose a little section of New Guinea is here, too?" asks Jane.

"Yes, indeed," replies the Museum instructor, "As you look at this group on your left imagine yourselves as standing on the side of a mountain in New Guinea looking southward across Lake Habbema which is 11,000 feet above the sea, toward Mt. Wilhelmina, New Guinea's third highest peak, snow-covered througnout the year. At your left you see a dark forest of pine and tree-blueberry, festooned with mosses and orchids. Look at the weaver birds, the birds of paradise, honeyeaters, and others in the trees. New Guinea has a great many birds in its tropical forests. Further up at timberline you can see only grassland with many brilliant flowers and above this, bare rock."

"How wonderful to see this!" exclaims Jane. "Now I can write my brother that I too, have seen a piece of New Guinea where our forces are driving out the Japs."

The scene now changes to exhibits in an ethnological hall of the South Pacific. Here the children are much interested in a group which depicts in miniature outrigger canoes and the simple dugouts used by these fishing people, the natives' homes built on piles, with thatched roofs extending over the entire sides and blackened rafters in the interior, and the important skull bowl containing the skull of the guardian ancestral spirit of the house. In the foreground on a small coral rubble islet, is a group of a bride's relatives making a large gift of pots to the bridegroom's family, a return present for the many hundreds of dogs' teeth which the bridegroom's kindred have previously paid. The heads of the women are covered with peaked mats because it is taboo for one of these women to see or be seen by any of her husband's elder male relatives or by her daughter's husband or fiance.

Exhibits of bark cloth or tapa with beautiful designs from Samoa, Fiji, and New Guinea, grass skirts, mats, wooden headrests, household utensils made from coconut shells, the weapons of the Gilbert Islanders of fifteen foot spears, three-pronged daggers and knives set with curved and sharply-pointed sharks' teeth, with the complete armor of closely plaited coconut fibre worn as a protection against these curious weapons, elicit many questions and exclamations of delight from the children. In other cases they see primitive agricultural implements and stone adzes, large fishing nets and canoe paddles used by the natives of New Guinea who live near Fort Moresby. Even native musical instruments — flutes, pan-pipes, conch shell trumpets, slit gongs and vase-shaped drums covered with shark skin are noted but become far more meaningful when the Museum instructor permits the delighted children to try some of the instruments for themselves.

The high point of John's visit is reached when he sees the life-sized double outrigger canoe in the Philippine Hall, although some of the girls prefer the bamboo tree house. A dis-

cussion of sailing long distances in this outrigger canoe introduces the question of what stars will serve as guides if sailing at night.

"You can decide this point after lunch," the Museum instructor says, "when you may go to a special performance in the Planetarium." In this demonstration the lecturer sets the heavens for the latitude of Wilhelmshafen in New Guinea, 5° south latitude, for the month of March so the boys and girls may see the positions of the stars in the Southern Cross, especially Acrux, the brightest star, and Canopus toward the west, which could aid navigators in this region.

Following the performance in the Planetarium the class sees several sound films depicting the peoples and products of the South Pacific Islands.

"Do you suppose we could take something back to school with us, Miss Jepson," says Thomas, "so we can invite in Miss Sawyer's class tomorrow and tell the boys and girls about what we have seen and heard here today?"

"You certainly may," replied Miss Jepson. "We'll now visit the School Loan Division of the Museum where you may make your own selection of sound films, colored lantern slides, and specimens to use in your reports tomorrow."

Miss Jepson divides her class into three comittees, each responsible for the selection of special visual aids lent free to public schools by this Museum. The committee visiting the School Loan Collections has the most exciting time for in this Division they find a wealth of material to select from. They finally choose two dioramas depicting scenes on islands in the South Pacific, some tapa cloth, native wooden bowls, neckrests, native weapons, masks, and last but not least in point of interest, beautifully mounted birds of New Guinea. All of these materials will be delivered by a museum truck to their classroom the following morning. The other two committees select groups of lantern slides and films which they carry back to school with them. Tired, but enthusiastic and happy, the children leave the Museum planning their next day's reports for Miss Sawyer's class.

This completes a full day's work of a typical geography class at The American Museum of National History. When one multiplies the experiences of this group by the many hundreds of classes which are visiting this Museum each term, is it difficult to realize that a museum of natural history can make an important contribution to the teaching of geography.

"Do we know all there is in a landscape by looking out at it from our parlor windows?"

—Oliver Wendell Holmes

Visual Materials Vitalize Geography

By KATHRYN SCHNORRENBERG
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WHILE in attendance at a dinner party last summer a dear old lady who knew that I was a teacher of geography said, "I never liked geography when I studied it as a girl. I often said to myself that 'it ought to be interesting but, — memorizing all of those little paragraphs. It was horrible.'"

A remark of that kind can't be brushed aside with the comment, "we would never teach geography that way today." Perhaps not, yet I'm not sure that we don't stand in danger of doing something equally bad — equally stupid. There are sins of omission as bad as those we commit.

There is a great demand for the teaching of geography at every educational age level and particularly so, if you append the title Global Geography. Not many people seem to have a very clear cut conception of what the title implies or what should be included under such a title. Just last week while attending a gathering of Social Studies teachers, it was variously alluded to as a new emphasis, a body of subject matter, a new system of transportation and communication, a need for world wide understanding, and a body of subject matter that must be introduced at High School level.

It is not my purpose here to discuss the merits or demerits of any or all of these positions but simply to point out, (1) that we had better know clearly what it is we want to teach or what needs to be taught, (2) that the teaching of the subject must be improved by using the very best methods and the very best aids and helps that are at hand.

Geography can be the most delightful, the most fascinating, the most challenging of subjects if it is presented in a vital, lively, and interesting manner and the most deadly dull when it becomes repetitious and memoritore.

How then can a course in Geography be given at any age level so that it may be correct as to information, interesting in content, will fill the need for certain basic understandings, and will be so vivid as to be almost unforgettable, yet will constantly lead to further research and study? That is indeed a big order, but it is one which can be accomplished in a course in geography if, (a) the teacher himself is well versed in the subject, and is a real teacher, (b) if proper means are at hand for vitalizing and vivifying the subject.

It is not the purpose of this paper to consider the teacher and the adequate preparation that he must have before he can satisfactorily deal with

the subject. Rather we will deal with the second issue.

The teaching of geography can be improved and vitalized greatly by the use of visual aids of all kinds. The understanding of a place, a country, an industry, or a process is a complex and intricate business. To describe a place, for example, in such a way as to give the listener a correct picture is a very difficult assignment. The omission of an item here or there or the overemphasis of another item may throw the entire impression which you attempt to give out of focus. The background of understanding and experience which the learner brings to the task varies so greatly that a teacher can never be sure just how much or how little he needs to say in order to teach the basic concept or idea which is the focal point of the lesson.

With a picture or series of pictures, ideas which would take thousands of words to describe are there in their true setting, and a word of explanation here and there, some tying up with other ideas already established, is all that is necessary. For this kind of graphic teaching photographs, book illustrations, picture post cards, and both still and movie projected pictures can all be used. They will make clear and real many ideas which otherwise would be very difficult to grasp.

Many more ideas can be emphasized in the course of a period through the use of graphic representation, than could be put across in any question and answer or discussion period. They will be remembered longer, too. Geography has a very large body of subject matter that needs to be presented if an adequate idea of the world in which we live is to be gotten by young people. A graphic representation, if properly understood and interpreted, can be grasped much more quickly and much more fully than the mere reading of a text or the discussion of a series of topics.

In most schools, movies, slides, delineascope projected pictures are a great adventure to boys and girls and even the dullest topics treated through this favorite media seem preferable to the best loved and favorite subjects treated in more traditional fashion. Nearly all the conditioning which children have received in regard to movies and slides has been pleasant, and we as educators, should seize upon this pleasure to drive home worthwhile lessons. I have no scientific data other than constant observation and work with children, yet I believe that it could be proven that children grasp much more detail in pictures than do adults.

It ought also to be pointed out the tremendous appeal which the so-called "Comic" books have over the affections of children. Before the advent of the *True Comics* put out by *Parent Magazines*, it might have been argued that it was the lurid subject matter which was portrayed. Since seeing the interest with which children pursue a series of pictures about General MacArthur, Chiang Kai Shek, or Robin Hood, I am sure that it is largely the mode of representation which appeals to them.

In my supervisory capacity I find many children at third and fourth grade level scarcely able to read at all from an ordinary book, yet seeming to have a good fund of general information.

On questioning one boy of this type I received this answer. "Oh yes, I read aloud to my little brother every

night. We have nearly one hundred "Comic" books and I've read them all to him."

Now good or bad, that ought to teach educators something about what appeals to children and what does not, and we should set ourselves the task of improving materials of that kind instead of merely "damning" the entire idea as being bad. There is a certain class of children that the school has never been able to really interest in reading, and this is a media which seems to appeal to that child in particular.

A series of sketches of countries, great cities, leading processes in manufacturing, or mining, farming, or other industries, a series on the National Parks, or on places of interest in any state in the union — all seem to have possibilities for strips of colored pictures with a very small amount of explanatory reading. These of course would have to be done with a great deal of skill and much knowledge in order to be of any educational value, but this idea is being tried in other subject matter fields with a great deal of success. A new science text book has just been published for primary children and it is all pictures.

The army training program is making use of films, slides, cartoons, and picture series to drive home much of their program. A good teacher to interpret this material is necessary.

No subject lends itself quite so well to such treatment as geography. It is true indeed that some of the best concepts and ideals do not lend themselves to such treatment but that is only a good way of proving the fact that visual aids will never obviate the necessity for a teacher to enlarge, to explain, to fix, to idealize. Much of the studying that needs to be done by children could be done through such graphic books. Why have geographers, who have such an ideal set-up for the use of graphic representation, been so slow to do a concerted, continuous, intelligent job along this line?

Maps and map reading are almost synonomus with the term geography, yet too many classes are attempting to teach without a large and varied supply of maps, globes, and charts. Some phases of map study can be introduced at every age level and the use of the globe should begin with the youngest children. The new type cradle globe has a fascination for children that is very great. They love to hold them, to turn them about, to locate places that they have heard of. These globes are expensive and many schools keep them locked away. Those schools are depriving their children of a rich experience and a fine source of information.

The maps chosen for presentation at each grade level should be chosen for many reasons — their accuracy, their meaning, but they can also be chosen because they are attractive or even beautiful. Some of the picture maps are very interesting and have a great appeal to the child.

Children will not learn much by simply coming into contact with globes and maps. There must be more than looking, handling, and using. Definite instruction must be given in the use and understanding of each and every type map used in the school room. Children should be encouraged to bring in other types of maps which they gather from other sources. These can be interpreted and appraised by the teacher.

The map should be referred to con-

stantly in lessons other than geography — in History, Literature, Current Events, and many others.

Next to viewing movies and slides, and the reading of "comic" books (this is a very great misnomer. There should be a better term,) children like to construct things — models, maps, charts, graphs, et cetera. There are many facts in geography that can be illustrated better than they can be discussed. One year, as a very young teacher, I taught a group of superior children. To discuss a topic with them was a joy because they had so much to give. After they had visited my room I was prepared for anything that might come up in any of the other classes. They were quite frank in expressing themselves. They were quite brutally frank in saying they didn't like our discussions in geography and that they really didn't get much out of them.

So I tried giving them unit work sheets on which they had many jobs to do—graphs to construct based on certain facts and figures contained in the subject matter, models to construct, occasionally some kind of craft to try their hands at, often a letter to write to people in other parts of the world. There was universal approval of this type of procedure and no one ever wanted to go back to the other kind of class periods. Such construction required much more reading and seeking for information than these children had ever found necessary to do before. It takes much more complete understanding to actually construct something than it does to discuss how it should be made. Attitudes of respect and admiration for peoples in other countries can be built up through trying to emulate or copy some of the things which they do well. Geography is indeed a many-sided study.

One of the most dreary of all school exercises is the giving of reports. In recent years this has come into repute as a method of giving children in a class wide samplings of information. The usual report is given orally with little or no illustrative material. Reports in geography ought never to be acceptible unless much illustrative material is used in the presentation of the report. An easily administered technique is to have on hand in the school a large number of plain glass slides. On these children can draw pictures, reproduce diagrams or charts out of books, or mount small pictures. Then as the report proceeds these slides can be projected onto a white wall or small screen in the classroom and greater interest in the report will be evoked. These glass slides cost about six dollars per hundred but drawings can be washed off and the slide can be used over and over again.

What we have tried to say then is:

1. That geography must be made a vital, interesting, and worth-while subject if it is to survive as a required school subject after this "popular" demand engendered by war has subsided. It must never again be a dreary, factual, memory exercise.

2. That the nature of the subject matter in geography lends itself very well to the use of visual aids. Much more information can be gleaned from a picture, a series of pictures, or a movie than from a very great amount of explanation, description, or discussion. And the impressions gleaned will be more correct if properly chosen interpreted visual aids are used.

3. That children have been so conditioned to visual presentations that

learning thereby is pleasant and easy.

4. That the use of the so called "Comic" books ought to suggest methods for improving school books, pamphlets, and magazines especially in the field of geography.

5. That the construction of maps, graphs, charts, models, et cetera appeals to children and leads them to do more careful reading than before. If properly interpreted and understood the facts gleaned in this way "stick" longer and have more meaning.

6. That good reports could be made better by the use of pictures or graphics of some kind. No report in Geography ought to be accepted without some illustrative material.

Conclusion

During the past week I have been called upon twice to give an informal talk upon "Global Geography." Neither occasion was very important nor did the groups addressed have much prestige or power. Yet on both occasions the talk was given head line attention in a large city daily and Sunday paper and after the talks a reporter was sent out to interview me. The only thing that was important about the occasion was the *subject* on which I was talking — "Global Geography." There is no doubt but that interest in the subject is at white heat, everyone is concerned about our ignorance and as a result of this interest there will be a popular demand that geography be put into the school program at every school level.

This is a great opportunity for teachers of this subject to make a real contribution to the knowledge and outlook of the American public but it also puts upon them a tremendous obligation—to pick and choose carefully those facts and ideas which are most basic and necessary and to make the subject interesting and challenging through correct use of teaching methodology. Visual aids should be high on the list of the "aids" that will vitalize geography and help it to contribute to an intelligent and well informed public capable of participation in local and world affairs. Much can be done in the field of adult education through more widespread use of films and illustrative talks.

"The contribution of the sound picture to education depends upon its effective utilization quite as much as upon the manner in which it is produced."

—Frederick L. Devereux

The Use *of* Visual Aids *in* Teaching Elementary Geography

By LUCILE ALLARD
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GOOD teachers of any period will always possess the same basic characteristics. They will like the subjects they teach and they will pass their enthusiasms on to the children whom they enjoy. The purposes of teaching geography as stated by authors of school books published in 1870 and again in 1929, differ in the major emphasis desired by those authors. Their very titles express their emphases, the first being called, "The Eclectic Series School Geography,"[1] more recent ones, "The Earth and Its People,"[2] and "Making the Goods We Need," and "Marketing the Things We Use,"[3] are known as geography or social studies.

In the year 1870, there seemed to be concentration on abstract "mathematical physical, and political geography," and the author notes particularly that no pupil should leave school without full understanding of the book's contents. He points out that the illustrations are presented in perspective, and that it would be well to provide children with an artificial globe. But he adds that geography is a science to be learned from maps and verbal descriptions, that satisfactory results can only be obtained by the use of a method which furnishes the pupil with accurate maps, vivid concise descriptions, and well-designed illustrations—he says that geography is a description of the earth and its inhabitants.

The 1929 author says that the major purpose of his geography is to lead the children to discover how conditions of geographic environment influence the lives and work of people.

Children in the elementary schools want to know the answers to their questions. They want to know why people do things, why things are built, and how they are used, and how they are bought and sold. The authors of the 1929 text believe that ten minutes of live discussion of vital questions will do more to fix facts permanently in the minds of children than an hour of old fashioned book study. In order to provide meat for discussion which elementary children can get their teeth into, the school must provide all sorts of experience growing out of and related to their interests and queries. These experiences include contact with real materials and visual aids in the form of films, slides, and generous picture collection or file for reference use.

1 Van Antwerp Bragg and company, "Eclectic Series School Geography," American Book Co. New York 1870.
2 Atwood, Wallace W. and Thomas, Helen Goss, "The Earth and Its People," "Book Two Our States and Continent," Ginn and Co., 1929.
3. Hanna, Paul R. and Krug, Edward A. "Marketing the Things We Use," Scott Foresman Company, New York, 1943. "Making the Goods We Need," Scott Foreman Co., New York, 1943.

There are two important types of visual aids which are included in the best school practices. Those which are presented to children ready-made, and those which the children create for themselves.

Schools today are studying large areas which include many of the old separate subjects and are often grouped under the heading of "Social Studies." Certain aspects of geography may have been neglected in the integration of those separate subjects, but now science is receiving much more attention and geography is included also.

Educators desire to build background for children and to help them to understand their community and themselves, and then to understand their country and the world. These educators have agreed to provide materials and experience for the integration of knowledge and the all-round development of all children. It is important that they be shown relationships and have their knowledges related. It is necessary also, that teachers put emphasis where emphasis is due. Here it is possible to develop geographic concepts through all avenues of learning. There is a wealth of visual aid material available which must be included in the plan for better understanding of the world and the people who live in it.

Children learn geography in the elementary school through the books they read, and the places they go, the weather they feel, the seasons they learn to understand, and the workers who become their friends. Such study begins in kindergarten and nursery. Boys and girls travel by train, by car and by plane either in play or in reality. They learn where and how to go places and to do things. They find out how weather influences the habits and living conditions of people and animals.

The good school provides a variety of visual aid equipment. Slides and films are made available when needed. The picture file, maps, globes, newspapers and magazines, and plenty of books in the classroom, in the library, or in some central location for the use of all teachers and children. Mimeographed outline maps are indispensable instructional material for children on the upper elementary school level. Along with their use of materials made by others, children create friezes, posters, maps, weather charts and graphs, home-made slides, and shadow shows. Dramatizations and marionette plays are valuable related activities. All sorts of illustrative material promote interest and build readiness for further study. These visual aids are only substitutes for seeing real things on well-planned and guided excursions to museums or places related to a particular unit. All such learning activities promote the development of geographic concepts and better understanding.

The war has created and discovered new needs in education, and has placed new requirements for the courses which are being presented on all levels of education. Even the youngest children are touched and influenced by this great war. The interest in the whole world and its people has come rushing at us and we cannot put it away with the winning of the conflict. So we must be prepared to meet the challenge in the elementary schools with suggestions for satisfying curriculum materials. Certain types of studies have possibilities for younger

children which creative teachers will seize upon and develop.

Geographic concepts are built in kindergarten and first grade when children and teachers talk of fathers, brothers, and uncles and other relatives who are fighting this global war in far-distant places. From current events and news broadcasts which even the youngest children hear, many misconceptions are brought to light, and the meanings of such as "volcano," and "north and south pole," are clarified.

A fifth grade boy wrote the following account of his visit to the first grade:

Last Thursday I was passing Miss D'Evelyn's room and decided to go in. I had a very interesting visit. I found that they were studying volcanoes, and this is how it started.

One morning a child came in with a newspaper picture of a volcano. Then some one asked what is a volcano? They talked it over and decided that men must put T. N. T. inside a mountain and set it off. This was wrong of course so the teacher asked if they would like to study about volcanoes. When they finished their study, anyone in the class could tell anything about the subject that one might want to ask. Today the science teacher is helping them make a small volcano in their room and he will make it erupt for them.

This same first grade was talking about why the sun shines on China while we are sleeping and shines here in the United States while the Chinese people are sleeping. A discussion of the north and south poles followed, and someone asked if there was really a pole running through the earth and sticking out at either end. One little girl assured the group that there was such a pole. She added, "Why of course, that is where we get our drinking water, from the pipes under ground connected with the poles that go through the earth." Another child thought drinking water came from the rain, and still another, thought she was wrong. This teacher grasps every such situation to clear these mis-conceptions.

Geography has had a revival with the world-wide development of aviation. Young people have followed the development of the aeroplane with great enthusiasm often being willing to accept this means of transportation more readily than adults. Children of all ages have constructed planes, the degree of perfection depending on the age of the child. But with the advent of the war, young children have been closer to those who are flying planes and constructing planes, and to people working in allied industries, because of the great increase in the number of men and women who have entered these fields. Never before has there been so much technical language entering the family discussions over the dinner table. Newspapers, magazines and advertising are using more accurate knowledege in writing and telling about the aeroplane.

The first grade at Stratford Avenue School had an interesting and profitable experience in the study of parachutes, and gained much from their teacher, Mrs. Elizabeth Hamblen, who is an aviator and a lieutenant in the Civilian Air Patrol. She tells the following story of the study:

Parachutes, their construction and use have always been fascinating to people of all ages. But now, with the tremendous importance placed on their use in war, they have reached even greater importance. Often children have brought in pictures of them, but when some silk

from the canopy of a real "chute" arrived in our six year-old group, a shower of questions fell upon us. The youngsters felt the cloth, commented on its softness and its fineness. We compared it with the material of our own clothing. Then we discussed why this material must be so soft and fine. Each child was given a piece which he folded into a very tiny pack. Then he took other material of corresponding size, folded it, and found that it made a much larger pack.

Thus we learned that the silk material took up much less space. On the board we drew a square representing the size of the seat pack. On the floor we drew a huge circle representing the 24 foot parachute canopy. Then we talked of the shroud lines and harness. After a number of discussions on the construction, use and care of the parachute, we decided to make a story about it. First we listed all the important ideas we must be sure to put into the story. We wrote our story from the angle of the private pilot, and we read it over and over again and made a great many pictures to illustrate the stories.

Today, even children in the elementary school are not content with just making models. They are eager to learn the language of the pilot. Teachers of young children should know more of this movement, learn its language, and note its implications for education, and also secure more accurate information for use in teaching. When we hear that there is no place on this earth that is more than sixty hours from any other place, then we realize that we must develop a new concept of time and space.

A particular group of eight year-olds was so eager to find the answers to aviation questions that they sought the help of the classroom teacher and the science consultant as well. In a discussion with the children, they learned that an aeroplane travels in the air and depends upon it. Therefore a pilot must first know a great deal about air currents. Several experiments were carried on to prove that air is everywhere, that air takes space, and that air has force and weight.

This same group found as the study progressed, that an aviator has to know about the shape of the earth. He has to know how to find his way from one place to another using various methods of navigation. Four of these ways discussed in the class were:—

(1) Piloting is using landmarks, and maps may be used for distances of 100 to 150 miles.

(2) Dead Reckoning (figuring) is useful for distances of 200 to 300 miles.

Dead reckoning is also called instrument flying, a kind of navigating where one uses a compass, maps, speed, and distances.

(3) Radio is useful beyond 300 miles. The pilot follows the radio beam.

(4) Celestial is piloting by using the stars and sun, things in the sky. A pilot may use one or all of these ways to find his destination.

Many questions of these eight year-olds still remain unanswered, but they will form a basis for further study of aviation.

One sixth grade in planning for the year's work, expressed a desire to study several things which reflected the war. Some of these were (1) to study maps and learn how to read them, (2) to study wars, especially war of the United States, (3) to learn more about the United States as a country. Tentative plans were drafted to meet these needs, and since maps would be used a great deal for refer-

ence throughout the year, it was decided to study them first. The children were enthusiastic. Maps were collected, drawn, exhibited on bulletin boards and in display cases in the halls. Some children made pin maps to follow war maneuvers. Because of the difficulty in getting supplies, the idea of making an electrical map was abandoned.

The children learned how many different kinds of maps there were, physical, political, population, product, rainfall, road maps, local maps, and maps of specific areas. Much practice was given in interpreting symbols, including the use of a scale of miles. Maps and information were gathered from many sources, among them were geography books, library references on global geography, magazines, newspapers, and a large globe on which places could be located with chalk.

This map study occupied the first three or four weeks of school and was greatly enjoyed by all the children. It proved extremely valuable in other work undertaken later. Children were able to interpret more easily the many different maps used, and carried their individual interests further by making map scrap books and drawing maps for personal use and pleasure.

A very capable group of ten year olds has a great urge to help the "war effort," and started a stamp exchange in the school. Boys and girls contributed stamps and exchanged them also. A small service charge netted the class ten dollars. The money was contributed to the local Red Cross. This youthful philanthropy started the group on a veritable orgy of patriotic earning, saving, and giving. The current events discussions provided inspiration and direction for projects to aid the invaded countries, and all sorts of money raising schemes were devised to help the dominated peoples. Up to the present time, the group has sent money to China, Greek, Yugoslav, Polish, French, and Norwegian relief organizations in the United States, and in every instance has received cordial letters in return. For example, the Norwegian Office of Information offered a speaker and a motion picture to the school for an assembly program with the fifth grade as sponsor.

This fifth grade read a condensation of "Paris Underground," and corresponded with the "Foyer du Soldat," which is the French U. S. O. Money sent to the Greek relief was used for milk, the children learned, and the Yugoslav group in New York has invited the children to visit headquarters where there will be an exhibition of beautiful costumes and other interesting things from the country. When the children go to the City on this excursion, each one will carry a bundle of clothing for the Yugoslavs.

This particular fifth grade's major study for the year is South America. They are making slides and posters about their study, and they have seen several motion pictures on South America. Two years ago, another group of children in the school made an extensive study of the same subject. These children are now in eighth grade. They have been invited to return to give an assembly at which they will show the slides they made on the life of Simon Bolivar, and explain large friezes, also present the performance of a shadow show they made. It was a dramatization of *The Legend of the Palm Tree,* by a Brazilian author, Magarida Estrela Bandeira Duarte,

and illustrated by Paul Werneck, published by Grosser and Dunlap.

Picture books are invaluable. They are the best visual aids for all ages and especially for the littlest ones in school. Colorful, charming and informative, they are based on the experience, research and travel of the author. Some picture books which seem particularly well adapted to the beginnings of geography are:—

The Little House, Her Story, by Virginia Lee Brown, published by Houghton Mifflin, includes ideas concerning the growth of cities, the seasons, the industrial revolution and the machine age.

The Good Luck Horse, by Chih- Yi and Plato Chan, published by Whittlesey House and McGraw Hill, is a story written by a Chineses mother and illustrated by her twelve year old boy. This is an old Chinese folk tale adapted and translated from the Chinese. The story tells that centuries ago a wicked old emperor in Old China burned all books, but that couldn't stop the makers of tales, as authors are called in China, from telling stories aloud.

Twenty Little Pets From Everywhere by Raymond L. Ditmars and illustrated by Helen Carter, is a book about pets of children of twenty different countries. A review of this book in the New York Times on December 12, 1943, said, "In a small way these descriptions by the late Dr. Ditmars and the beautifully designed and drawn pictures by Helen Carter, form a kind of zoological geography, a handsome and fascinating one."

People Who Work at our House, by Clara Ingram Judson, and illustrated by Keith Ward, published by Rand McNally, speaks for itself in the title.

Make Way for the Ducklings, by Robert McCloskey, and published by the Viking Press, is a favorite of all ages and a personally conducted tour of Boston and its environs by the whole family of ducklings.

There are countless other delightful children's books which can be used for the beginnings of geography, for information, and for pleasure, and no one would doubt their visual education possibilities. Ingri and Edgar du Aulaire are among the outstanding authors and illustrators in the field of children's literature and illustration. One reviewer has said of them,

"The du Aulaires are not ordinary travelers. On their journeys to Norway and to Lapland, they have looked about them with the clear-eyed pleasure that children take in new sights and strang lands.

Geographical concepts must be included in the curriculum of all schools, and if children can have a sensitive well-informed teacher who knows how to use vivid instructional materials. these children will begin to understand this global war and the peace which they must help maintain. There was a time when high schools put much emphasis on ancient history, but now that course in ninth grade has been replaced by a year's study of geography.

"The world must be safe for all nations in order to have it safe for any nation; and no nation is safe so long as any nation attempts to exercise unlimited sovereignty; and every nation is safe when the rights of all are respected."

—S. Harrison White

Pictures *as* Laboratory Material *in* Geography

By EDITH P. PARKER
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THE need for pictures in the teaching of Geography is inherent in the very nature of the concepts and understandings with which Geography is concerned. The chemist has in his laboratory the gases, liquids and solids with the analysis of which his science deals. He uses them in demonstrating procedures and findings by means of which the laws of chemical interactions are derived. Students learn in the chemical laboratory to apply knowledge of those procedures and principles in making findings for themselves. The physicist, botanist, zoologist and teacher of elementary-school science all can have in their laboratories many, at least, of the machines, plants, animals and other material objects with the analysis of which their sciences are concerned. Unfortunately, the geographer cannot bring indoors for study the real subject of his analysis, for it is the face of the earth as modified by the earth's human inhabitants. Nor can he take his students to see more than a tiny fragment of the real face of the earth. The nearest approach a geographer can make to bringing real landscapes indoors is to use photographs of them. It follows that *pictures constitute basic laboratory material in the teaching of Geography.*

The use of that part of the geographer's real subject of analysis which is constituted by the landscape of one's own locality, necessitates field work in which that real landscape is observed directly. Laboratory work with pictures of landscapes should be made as much like field work as it is possible to make it. The potentialities of so doing are far greater than is commonly realized. To attempt to teach Geography at any level or stage of general education without such field and laboratory work is precisely like attempting to teach chemistry without providing any opportunity for students to practice chemical procedures in actual laboratory experimentation for themselves. As Dr. Isaiah Bowman has said, in essence, no one has really studied a science who has not gained a sense of discovering for one's self. No one really has studied Geography at any level until he has learned to make *for himself,* both from real landscapes and pictures of them, findings of the type which geographers make as they analyze the face of the earth with its man-made modifications. Of course, the findings of a fourth-grade child will be exceedingly simple as compared with findings a freshman in college learns to make as a result of effective laboratory experiences. Nevertheless, as in other elementary science work, the fourth-grade child learns to

make for himself some types of geographical findings if appropriate laboratory experiences are provided for him. The sense of discovery and the feeling of power he develops as a result of making simple findings from landscapes is as real, as enjoyable, and as stimulating to him as is the sense of discovery and power which comes to adult students from making findings of a higher order of difficulty.

Geographic laboratory work with pictures has as its major purposes:

1. Clear, accurate understanding of the environment in which people live in the region under consideration; of the problems people there meet in coping with or taking advantage of various aspects of that environment; and of means they have devised to use as best they can the resources at hand;

2. Keen realization of ways in which conditions and human affairs in any given part of the earth are interrelated, because of the essential "oneness" of our world, with conditions and human affairs in other regions;

3. The ability to read for one's self from landscapes (whether real, pictured, or symbolized in maps) significant facts upon the knowledge of which such understanding and such realization must be based.

The idea of Geography as a subject necessarily involving laboratory work at every level is new to many educators. Even many teachers of Geography are using pictures profusely without accomplishing through their use anything except the mere visualizing of landscapes in various regions. Such visualizing is, of course, an essential first step toward the goals of laboratory use of pictures, but it may be likened to the use of a model brought to a physics class to show the appearance of some machine that cannot conveniently be moved into the laboratory. If the physicist does no more than thus define the machine in the form of concrete imagery, and makes no analysis of its workings, he contributes little through his use of the model to a student's knowledge of physics. Similarly, the visualizing of landscapes in any given part of the world is the merest beginning in the use of those landscapes to gain geographical knowledge of critical importance in understanding human problems of living in the environment found in that region.

In many cases, pictures are used profusely without accomplishing even this first essential step of *correct* visualization. In many geography classes the use of pictures resembles to such a degree the use which a travel lecturer commonly makes of them that it seems wise, for purposes of contrast, to consider briefly such a lecturer's procedure and its results. His goal is not the development of geographical understanding in his hearers, but the entertainment of an audience for an hour or so. He naturally centers attention on those features in a landscape which the average tourist on a vacation tour tends to note and report. Most tourists have had no opportunity to learn of the thrilling stories landscapes tell to a trained geographic obesrver. They are as blind as the young American who complained to all in hearing on a train in southern France that "nothing was in sight but the dumb Pyrennees" at a moment when the many man-made and other landscape features in sight spoke exciting facts to those of her fellow passengers who knew their significance. To excite the interest of the untrained observer, features must be

seemingly unique in beauty, size or grotesqueness, and human incidents must he dramatic or amusing. The travel lecturer tends to select, accordingly, landscapes in which such features predominate and embroiders his fabric of descriptive comment with stories of dramatic or amusing incidents. The audience leaves such lectures, as the average tourist leaves a country, with a feeling of satisfaction that he has a volcano, the midnight sun, and the like to think and talk about. His impression of the region as a whole is a composite of the particular specifics presented. At best it is not well enough rounded to be accurate. At worst it is so far from the truth that it breeds wrong attitudes and necessitates much unteaching before any true understanding can be gained.

The pictures used in laboratory work in Geography must be vitally interesting but they must be carefully selected to give a balanced comprehensive, true impression, in which significant details are seen in proper perspective. The mere selection of pictures which will serve this purpose is a complicated, exacting task which tests the teacher's understanding of the region and its people severely. Too many pictures, like too many words, merely confuse. It is as difficult to select a group of pictures which, without being too large, gives a correct general impression as it is to write a lecture which in the fewest possible words develops a major idea clearly with appropriate emphasis on each subordinate idea involved.

Even with such a group of pictures culled, it is not so simple as commonly is supposed to accomplish the first essential step of leading students to translate the picture into accurate imagery of the real landscape photographed in it. When, for example, a city child in Junior High School saw real cattle for the first time she said "But those can't be cattle. I know from pictures that cattle are larger than sheep, smaller than cows, and spotted." Leading students to visualize real landscapes accurately requires much more effort on the part of a teacher than that of merely showing the pictures and having students call individual features therein by name. Numerous comparisons and contrasts of features seen in pictures with those one has actually observed in real landscapes are essential. Numerous concepts of relative sizes, distances and slopes must be read *into* pictures, with the aid of maps and descriptions, before children can read out of them many of the realities in the actual landscape pictured. Every effort must be made to make the things in the carefully selected photographs seem so real that students in their imagination put themselves in the place pictured and move about, so to speak, in it.

With the completion of this vital visualization step, a teacher has accomplished, as has been noted, only the defining as it were, in terms of concrete imagery, of the real landscape to be studied. Even when one has clear images of landscapes in a given region in mind, he is no farther in his geographical study of that region than is a student of chemistry when he sees the particular liquid he is about to analyze.

Any adequate discussion of later steps in geographical laboratory work with pictures is perforce lengthy. Perhaps in a brief discussion of such work its general nature can be best indicated

in terms of results rather than in terms of procedures. Suppose that an adequate group of pictures taken in a given region is on display in a classroom. They are hung at eye level with at least three feet between any two adacent pictures. They are not captioned, but an outline map attached beneath each one indicates the exact place in the region where the picture was taken. Since they are uncaptioned, what children discover from them must be read from the landscape itself and not from words.

A sixth grade group makes what amounts to a "reconnaissance survey" of the region, each one imaging that he drives from one to another of the places pictured. As a result of their own study of those landscape pictures, the group reports accurately:

1. The major physical characteristics and outstanding features of the region;

2. Evidences, in the form of man-made features in the landscape, that the region is settled densely, sparsely or moderately (as the case may be,) and evidences of differences in density of population in different parts of the region;

3. Evidences, in the form of specific landscape features that activities a (farming, for example) b, c, d, etc. seem to be major ways of making a living in the region;

4. Indications, such as specific types of natural vegetation, crops, clothing, houses, etc. seen, of climatic conditions that prevail in the region;

5. Characteristics of the climate that seems thus to be indicated;

6. Evidences, such as roads, vehicles, tools, types of houses, etc., of the level of living that seems to prevail; and

7. Clean cut questions which arise from the facts observed—questions which obviously must be answered by further study of the region in order to gain real insight into the lives and problems of the people in this part of our world.

Clearly children who know how to make these discoveries *for themselves* from photographs of landscapes have had effective training in the use of pictures as basic geographic laboratory material. They have a sense of real discovery and of power to see and think about things *as they are* on our globe. Their observation and thought are, of course, no more mature than they are, but the seeds of more mature later thinking have been planted.

Much is being said and written these days about the need for global understanding. It is impossible to get any adequate understanding of our spherical earth and the lives of its inhabitants without Geography of a type in which laboratory work of high order with carefully selected pictures, is provided. Such understanding can be developed but not until teachers and educators are awake to the need for the right kind of geographical laboratory work with pictures. Do we want to act to give global understanding or are we content merely to talk about the need for it?

"Pictures furnish material for thought as does the printed page, and they even rival print in that task."

—Frank M. McMurry

Pictures *in* Geography Teaching

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PICTURES in print and on the screen are taking our elementary school boys and girls to the far-flung areas of the world. Are these pictures giving them international understandings so that they realize they are world citizens with world responsibilities even while they are children?

Geography is a study in understanding relationships between the natural environment and the life of the people. These causal relationships may be within a small area, over a large region, or include inter-relationships which compass the world. The best method to study the way in which people react to their environment is to view them in it. For example, seeing the farmers dry hay by hanging it on fences in the deep, narrow valleys of Norway. Obviously today, geography teaching by means of planned travel experiences under school auspices is impossible. Therefore, pictures become a major factor in geography teaching.

This paper considers how the photographed and printed still pictures are used to develop an understanding of geographical relationships with pupils in the kindergarten and first eight years of school life. Therefore, it considers (1) the selection and evaluation of pictures and (2) the utilization of pictures in geography teaching. The word: *picture*, as herein used includes photographs, prints, stereopticon slides both standard and miniature, filmslides, stereographs, posters, and illustrations in books. Though maps are not specifically considered, it is impossible to discuss pictures without having a concept of the physical globe and its various representations in maps.

Pictures for use in geography are thought of in two ways: (1) those which depict geographic relationships and (2) those which depict individual concepts which are necessary for understanding geographic relationships. Pictures which do not possess either of these two qualities should be eliminated from a study of geography. Pupils read from those of the first group an understanding of the relationships between the natural and cultural elements in the world and in life. An airplane picture taken at two thousand feet elevation of a fairly level well watered middle latitude area, shows why agriculture can be carried on in that region and why towns have grown up where they are. More detailed airplane pictures of the same region taken at eight hundred feet and other pictures, give an opportunity to study more relationships.

Pictures of the second group give a knowledge of individual concepts essential to understand geographic relationships, a picture of an atoll gives an individual concept picture which is necessary for a study of life among the smaller south sea islands. Accurate

pictures, build up individual concepts because they give the mental images from which concepts are formed. These concepts become an integral part of the process of reflective thinking which in geography results in an understanding of relationships. Thus, well selected and evaluated pictures conserve time in learning, result in more accurate information, and make for greater retention of facts.

The utilization of pictures to develop geographic relationships are considered: (1) for understanding the world today, (2) in studying units of work or centers of interest, and (3) in leading to appreciations.

The world happenings of each day influence what teachers do with pictures for that day. Then, too, the pictures that pupils see in print and on the screen, or bring into the schools need interpretation by means of other pictures. By weaving the concepts thus formed into geographic relationships, boys and girls gain a techique of reading current pictures and understanding their implications. Pupils need to spend much time with the globe so that current pictures may quickly take their proper place in the world, or if a location is unknown, the pupils need to form the habit of seeking the globe or maps. A study of which pictures are valuable from a geographic standpoint for the bulletin board and which are not, help pupils form habits of observation and evaluation. Some of our former pupils write that they wished they knew more world geography to help them in their experiences. Well-used pictures help keep our pupils abreast of the meanings of the geographic experiences that their brothers, relatives, and friends are having. Then, later, the boys and girls of today will be able to carry on intelligent conversations and be compatable travel companions with these men.

Though current problems are receiving much attention in the school, nevertheless a logical and psychological plan in geography should run through the school course which will result in the pupils understanding some of the geographic relationships that are constant and new ones as they develop. In creative teaching, geography is usually studied in units of work or in centers of interest. In many school systems geography is a part and too often a minor part of social studies. Knowledge of geography is too valuable as an essential element in school work and life to be neglected

The utilization of pictures in geography teaching begins with the teacher's planning. Objectives are determined, then follows the selection of subject matter areas, experiences, and visual aids that will help fulfill the objectives. Only pictures which have an inherent value to contribute to the desired geographic objectives are selected. Looking at a picture is often causal, it is simply a recognition of the obvious things in a picture. When pupils begin to question what they see, meaningful observation is taking place. In this the pupils go beyond the stage of just looking: they are beginning to read pictures. The teachers help them gain skill in reading pictures by asking a few pivotal questions which are thought-provoking, and which point toward an understanding of the idea represented. Thus pupils are lead to know how to read pictures, to go to them for an answer to a question, to recognize relationships, to place pictures in their proper world setting, to investigate something they do not un-

derstand, to go back to pictures and continually ask "why" about the things they see, and to enjoy pictures. As a result accurate concepts are formed, and meaningful relationships recognized. The background, experience, flexibility of mind, and habits of work and thinking condition the degree of reflective thinking of which each child is capable. To pupils, who gain the ability to read pictures as they read books, to them, pictures are as essential factors in learning and enjoyment as the text or the experience.

The geographic understanding desired determines when and what pictures are read. Pictures are utilized to (1) initiate a study or investigation, (2) to develop reflective thinking, and (3) to reach a summary or give a new view in a review.

Pictures which help initiate a study do so in three ways: exploration, focusing, and appreciation. An exploratory use of pictures determines the major areas of interest of the group, crystalizes the initial thinking, and gives momentum to the study. There are times when pictures focus pupils' thinking toward untrodden fields because pupils' interests are limited by their immaturity and often by their lack of cultural and social backgrounds. Studies and activities which are begun with a degree of appreciation and which have that appreciation enriched through pictures as the study progresses are more meaningful in the lives of the pupils than those studies which are pursued on simply a factual basis. Color and human interest in pictures add much for appreciation. All things are new to little children, and fortunate are they whose teachers create an atmosphere in which appreciation may develop. Pictures, used in these three ways in initiating the study of a geographical topic, capitalize the pupils' interests in life situations and give perspective toward geographic understandings.

Pictures should be a part of the development of each new concept that cannot be presented through direct experience. Accurate pictures in most cases mean accurate mental images: the material with which little children think. Gradually these mental images form concepts which become more abstract as the children grow older. These abstract concepts, which have meaning because they are based on accurate mental images gained from pictures and experiences, give pupils the ability to do reflective thinking. In geography this means recognizing relationships and using the results of these understandings in life.

Problems continually arise in pupils' minds during the study of a unit of work or an investigation of a center of interest. Pictures help solve these questions by clarifying thinking at each step in the solution, and by helping the thinking advance from step to step. This requires the pupils to read the pictures; evaluate the contributions they make; and to determine whether they contribute added proof, or set forth points which are negative, or interject a new element. Pictures also help solve problems by making evident cause and result, by proving a principle, by helping contribute to both logical and psychological sequences of thought, and by giving practice in the ability to search for data in many pictures. They help pupils hold solutions and judgments tentative while the study or investigation is in progress, or even after the study has progressed to other problems. This is

evident because valuable pictures are often found and recognized by pupils after the period of discussion is over. These additional pictures may coincide with known data or suggest new questions or problems. In the solution of many problems, reading pictures and having experiences are so inter-locked that they may be reciprocal.

The transition from one unit of work or center of interest to another, or from one part to the next within the same unit of work, often is most effective with pictures. When a high degree of thinking and activity is present, as current work draws to a close, it is desirable to continue the activity into the new study. Pictures help keep the thinking and activity normal and creative, so that the new work, has not only the incentives continued from the old, but new outlooks and motives to carry it forward. Such transition brings a feeling of reasonableness and harmony to the days' work and a unity in education.

Pictures give an intrinsic value to the pupils when used in a review or summary. They give a new view or interest and a farther outlook which carries the study beyond the time covered in the school into the lives of the pupils. They help summarize the study by interpreting the geographic relationships for the needs of today. In this way the study is not terminated but is alive and creative carrying the pupils towards an ever receding horizon and deepening their feelings and appreciations.

Interwoven with the utilization of pictures for understanding is their use for development of the ability to appreciate geographic relationships. To the degree youth is able to appreciate himself, his experiences, his fellowmen, the world, the universe, through pictures, to that degree will he reach out for realities which are of greatest value. The pauses in the day to enjoy the lovely in pictures are pauses which give a light to the eye and a smile to the face, and which help carry the pupils through the more serious parts of the days' work with the uplifted head of a joyful, allround personality. Beautiful pictures of geographic values, attractively mounted and displayed, add a feeling of beauty to the classroom.

Our little children know only a world-at-war, if the war lasts many years a world-at-war will be the normal thoughts about the world for children. Pictures can help make childhood happy today and when these little children of today look back on their childhood the pictures that give them joy will outlive those that showed chaos. Therefore,pictures in geography may be used to help children appreciate the world as a living abode of peaceful people.

The geographic relationships developed from the wise selection and utilization of accurate pictures give the little child a feeling of being at home in his environment and a part of a larger world. These relationships help older boys and girls begin to understand other peoples in the world, the events in a world where places are only sixty hours apart, and our country's place in the world. As a result of studying pictures, the power to do reflective thinking in the realm of geographic relationships in our world today should lead our boys and girls, now, and as they grow older, to work for the betterment of our democracy and for a foreign policy which will give lasting peace to the peoples of our world.

Symposium *of* Visualized Geography Lessons

I. Air Photos of the Home Environment

By ADELBERT K. BOTTS
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IF ANY visual aid used in class room teaching can be characterized as natural, air photographs deserve that description as much as any device the elementary teacher is likely to use. They are understandable at the lowest grade level, adaptable to all grade levels, humanized, completely detailed, economical, and, in peace time, procurable for almost all communities.

Since photographs are a normal part of every child's life, he readily grasps the significance of photographs of his home region taken from an airplane. Such photographs have been used in first and second grades in New Jersey with most satisfactory results. Watching a group of first graders on their knees, clustered around an air photo of their school community spread out on the schoolroom floor is a gratifying sight for any teacher.

These youngsters know nothing about conventional maps and need know nothing about them in order to get functional concepts of local space relationships as portrayed on the vertical air photograph. Photographs are always smaller than the real thing so it is no surprise for the child to find his path from home to school represented by a four or five inch line. The application of that distance to other sections of the photograph is a convenient, simple, and functional utilization of the scale concept which will be used later with maps.

With conventional maps, orientation is a process that must be taught and explained. Observation of children using air photographs of well known regions, indicates that directional orientation of the photographs is a very natural response. For beginners the process of orientation need not be named, but certainly there is educational value in an experience that initiates a desirable habit for later map reading.

Air photographs possess a human quality that maps lack. To a child studying an air photograph, the school building and grounds are real things on a real photograph. The street from school to home is a real street. The trees, the garden, and the neighbors' homes are all parts of the child's living environment.

When the time comes in later grades to learn map reading, the clever teacher with tracing paper and pencil can devise many interesting ways of mak-

ing the transition from the air photograph to the conventionalized map. But even after the transition is made and map reading ability has become a functional reality, air photos will be used to supplement the limited information available on maps. In the upper grades it will be desirable to portray in air photographs samples of the living environment of many parts of our own country and of other countries as well.

At the present moment, this device is in limited and restricted supply to the civilian public. But the time will come again when air photos will be available to classroom teachers. When that time comes, alert teachers will be quick to take advantage of this "windfall" from industrial and governmental survey work.

Before the war, one of the best sources of vertical air photographs was the Agricultural Adjustment Administration which distributed them primarily in connection with their soil conservation work. Their maps, measuring about twenty-two by twenty-two inches had a scale of approximately eight inches to one mile. Many states are completely photographed for the files of that agency. Their photographs were procurable before the war at the rate of one dollar each. It is reasonable to assume that after the war some governmental agency will again be able to provide up-to-date air photographs as economically as they were provided before. And it is also reasonable to anticipate that teachers will avail themselves of this device, one of the most helpful and adaptable visual aids produced in recent years.

"In a picture you can find nothing which the artist has not seen before you; but in a perfect photograph there will be as many beauties lurking, unobserved, as there are flowers that blush unseen in forests and meadows."

—Oliver Wendell Holmes

Symposium *of* Visualized Geography Lessons

II. Seventh Graders Tagua Conscious

By MARGARET S. CHEW
Haven Intermediate School
Evanston, Illinois

VISUAL aids in the geography classroom add realism to the heavy reading program already found there. One main type of visual aid is known as the object-specimen-model type. This year in our seventh grade class we began studying Ecuador by looking at and examining a tagua nut and button display secured from a vegetable ivory button factory in the state of New York.

The whole display which immediately attracted the interest of each student consisted of whole and cut tagua nuts, slices of tagua from which buttons had been cut, buttons in their various stages of manufacture, tagua shavings from turning the buttons, and dust left over from drilling the holes. Questions from the class led the students into the study of the tagua palm, the physical conditions necessary for its growth, and the study of Ecuador's resources and role in world economy.

One of the important aspects of the lesson was that the students transcended the physical phases of geography and went into the economic and human elements. The class learned that tagua buttons are almost universally used for tweed coats and vests, but that today in our country they are practically all on government order for military clothing because the tagua will withstand the delousing process better than other materials, and that the shavings and drill dust, ordinarily a waste product, are being bought by our big ammunition factories for shell filler because they are cheaper and drier than corn which was used during the last war. The students became more observing and aware of different types of buttons and also noticed in the ten cent stores bracelets made of colored tagua remnants from which buttons had been cut.

It was very evident that with the use of a visual aid zest and more meaning than mere verbalism were added to the study of a product which formerly did not mean much more than a name to a twelve year old. The child became more sensitive to the principles of economic and human geography than he would have if he had just read or listened to a report rather than actually seeing tagua nuts and tagua buttons and tracing down their importance in our world today.

Symposium *of* Visualized Geography Lessons

III. An Elementary School Study of Soil Conservation

By VIOLA CASSIDY
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CHENEY, a small community lying between the glacial scoured scablands and the Palouse hill formation in the state of Washington, furnished the scene for a community resource study vitally important in the lives of many children living on subsistance scabland farms or on Palouse hill wheat ranches. This rich, hilly farmland has become one of the major erosion areas in our country,

The primary visual resource was at our command—the land itself. Children could observe through living on farms and guided field trips what was happening to the soil of our region. Experts from the United States Soil Conservation Service helped children see the importance of soil to man. Soil horizons, varying textures and structures were observed. What makes soils different became a problem to be solved. Back in school, another visual aid came into use to help solutions, the scientific experiment. Such experiments as "How Rock Materials are Deposited," "The Weathering of Soil," and "The Water-Holding Capacity of Soil Types" were performed to determine how soils have been deposited and vary in content. Understanding humus content brought forth the relationship existing between plant life and soil.

The kinds of plant life found in this region became important. Why does wheat grow well? What grows in sections where no one has planted crops? Certain types of native and cultivated plants were found to grow in the region. We discovered we lived in a grassland area.

Characteristics of good pasture land were discovered through observation, pictures, and further experiments with the cultivation in the classroom of different kinds of grasses in varying types of soil and with varying amounts of moisture being used. To aid in understanding that the distribution of rainfall is important in determing land use and understanding native vegetation, the rain gauge, thermometer, barometer, physical, economic, and rainfall maps became important visual aids. A series of slides showing what various rainfall regions actually look like were shown to help visual imagery.

Throughout this study, the visual as-

pect of learning was never absent. Field trips were frequent and necessary. Experts were often consulted from forward-looking farmers to field workers of the Soil Conservation Servicce as an appreciation grew for the need of better farming practices.

In the class-room where many growing concepts were clarified, frequent use was made of the scientific experiment, maps of many kinds, films, film strips and slides. We felt the children had gained richly in new insights, appreciations and understanding of the vital problems facing all people in their community.

"It is the combination of visual instruction with training of the memory, and practice in accurate reproduction in language of what has been pictured to the eye which so strongly commends [it] to progressive teachers....."

—Charles W. Eliot

Geography Aids War Training

By HOYT LEMONS *and* LEWIS CANNELL
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INTRODUCTION

WHATEVER may be the values of geographical thinking to our peace-time economy (and let us hope that in the peace to come they may be recognized as vital,) we have by now learned that geography is also of the essence of war. War is the clash of different geographic entities, conditioned by different geographic situations, and pursuing different geographic ideologies. It is fought over a field, whether large or small, where geographical advantages do much to determine the winner. It is, in fact, a conflict in geographies. In the present war we were confronted by enemies who for years had been building armaments and who for years had stressed geography as a major science. We were without arms, without geographical training, and without sufficient plant capacity to produce either. Europeans who have called us politically illiterate might with greater justice have called us geographically illiterate —and imbecile to boot.

Nothing has brought to light more clearly the great lack of geographical training and the great need for geographical thinking in the world crisis than the emphasis placed on geography by the various training programs of the army. One of the largest programs is the Army Air Forces College Training Program. Since its institution on the first of March, 1943, future officers of the Air Corps have been enrolled in five-month college courses prior to their assignment to army preflight schools.

The almost overnight appearance of 70,000 uniformed geography students on 70 American campuses created considerable consternation in higher education. Hurried orders went out for equipment and books. Publishers hurriedly clapped plates on their presses and ran off new printings of old texts. Deans and directors hastily combed through the credentials of their faculties in search of possible instructors, and personnel men were sent out to "beat the bushes" for trained teachers with a background in geography.

The Instructor Shortage

One estimate has it that there are not above 500 trained geographers in the whole United States. One-half or more of the 500 are in Washington, D. C. If all of these were employed in the Air Force program, they would provide only about three-fourths the necessary number of teachers. There are other branches of the service, however, in which they are needed as teachers and other phases of the war effort in which their training is indispensable.

It is to be regretted that so few geographers are left on college faculties, especially if they function in AAFCT

and AST Programs. When attracted by the bright lights of the nation's capital or by the glitter of an officer's uniform, they should consider carefully the law of comparative advantage. Where can they render greater service? Air Corps men need geographical training. They find much of its systematic material of technical value. The regional and political aspects tend to be of cultural value. Moreover, our populace is geography thirst. It wants world-wide geographical information and interpretation. The opportunity is golden for teaching correct geography concepts, for developing international understanding and tolerances, and striking a timely and mighty blow against isolationism. Geographers have a service to perform at home. If they fail to lead the way others will lead and will interpret their field for them.

At Washington State College a geography staff of twelve members has been formed in a brief period from persons formerly engaged in such diverse fields as art, English, economics, commerce, paleontology, forestry, wild-life, minerology, and personnel work. They have all proved to be competent to a surprising and very gratifying degree. This is typical of the manner in which large staffs have been formed on short notice in institutions all over the country. In most cases trained geographers supervised the organization and brief training of such staffs and now direct the departments. In some instances, however, no geographers were present and the tasks of choosing texts, organizing courses of study, and giving refresher courses were handled by geologists, economists, and others. Certain cases of this type have come to the authors' attention. Most of these are in the West where geographers are scarce even in peace time.

Students' Backgrounds

Equally as startling as the lack of geographical training among instructors is the lack of previous geography training among Air Corps students. We find that 86 per cent have completed high school but only one-third of this group took any geography in high school, according to their written statements upon enrolling here. Moreover, this latter percentage appears too high since many of the individual course titles which are listed can scarcely be classed as geography even by a most liberal application of imagination.

Some 36 per cent of the men have attended college. Six per cent have less than a year, twenty-three per cent had one to two years, and seven per cent had two or more years. The number of men with Bachelor's degrees is negligible. Of the entire college group eighteen per cent have taken some college geography.

Interpretation of the results of our surveys indicate certain significant facts: Comparatively few students in our schools today take geography. This is in contrast to the situation which has prevailed in Germany where geography is a required subject at practically all levels. Those of the Air Corps who have had geography previously either learned little during their courses or have forgotten surprisingly rapidly, because the mean grades of those with no previous study of geography rank as high as those with previous study, on our entrance test. The average age of the cadet is 20.6 years; the range being from 18 to 26. A definite correlation exists between abil-

ity as shown on entrance tests and geography grade earned.

The Geography Course Of Study

If the army training programs have brought us to admit our national shortcomings in the field of geographical instruction, we have admitted those shortcomings only as we have admitted needs not met. Few would deny the importance of the needs which the army has indicated in setting up its courses of study. The cadet needs a background in map-making and map interpretation, he needs a background in meteorology and climatology, and, like other citizens, he needs a background in regional geography and its effect on political and economic thinking. It is noteworthy that even in face of the great necessity for speed our army leaders have not limited their training programs to those things which are of immediate practical military value. They have included in a shrewd combination both the things of vital importance on the battlefield and the things which make the enlightened soldiery of democracy more purposeful either on the battlefield or in the peacetime world to follow. The objectives which the Army has set up for the course in geography are indicative of this philosophy:

1. To lay the foundations for the technical use of maps and charts in aerial navigation.

2. To prepare for work in meteorology by offering instruction in physiography and climatology.

3. To acquaint the student with the geographical factors which condition the economic and social life of peoples and influence the policies of modern states.

4. To provide the student with a grasp of economic, cultural, and geographical relationships between the nations and peoples, particularly those engaged in the current conflict.

The Air Corps training program ranks geography in importance after mathematics and physics. Next to it is history, which obviously, to a much fuller extent than geography, is included to give the cadet an appreciation of war purposes and peace problems. Last in the curriculum is English.

The course in geography as set up at Washington State College is comparable in the nature and quality of material included to a regular freshman or sophomore course in elements of geography. Sixty contact (class) hours are alloted to the course. It has been found most satisfactory for both instructional and scheduling reasons to meet three times per week in lecture and once in a two-hour laboratory.

The army's working outline includes something of practically all phases of the broad field of geography, most of it being systematic material. Typical topics are as follows: (1) The earth and the representation of its surface. A study of earth-sun relations, latitude and longitude, maps, map-scales, and map projections provides a technical background for navigation. (2) Climate and weather. Acquiring a vocabulary in meteorology and climatology and a knowledge of the elements of these fields provides a background for later technical courses in aviation meteorology. Along with (3), physiography, this also helps prepare the stage for much of the drama which is human geography.

The human element is interpreted in light of the physical setting. Where do people live and why? What are

their resources and how are they utilized? What problems do they have and what effects may these have on the world scene? Phases of economic, commercial, political, and regional geography are all included in-so-far as time permits.

Problems Of Instruction

The techniques of pedogogy have undergone prodigious changes as a result of military influence and the necessity of teaching geography on a war-time mass-production basis. Time is the critical factor in the Program. Much material must be omitted but that which is included must be learned and learned well. Army instruction, in contrast to much of our college instruction, emphasizes intensive rather than extensive learning. Technical material, especially, must be learned so that its use becomes second nature.

Each month there are usually twelve to fifteen sections in each of the three one-month segments of the course. It is the army's desire that they be uniformly taught and then uniformly tested and graded so that the course grade of each man in the program will be an index of his ability as geographer—measured against all other men in the program and not simply against the member of his section.

This is a large order for the teaching staff, and it has meant frequent conferences (sometimes amounting to seminars), constant revision of the departmental syllabus, and constant effort at the construction and emendation of standardized tests. Such standardization as has been effected has not resulted in streotyped performance on the part of the teachers. Rather have the requirements, the wisdom, and the cooperation of the army training commands given each teacher a desire to do his individual best in terms of his own teaching experience and also a sense that he is making a positive contribution to the war effort.

The men in the training detachment are, for the most part, eager, energetic students. A large percentage have hopes of undertaking or resuming college courses after the war and may likely have their present training interpreted in terms of advanced credit. They are handicapped by a program which is physically tiring, and which is so full that there is little time available for outside study. After an hour of military drill, and after an hour or more of physical training, which may include the running of obstacle courses or the boarding of life rafts, the student has an almost insuperable tendency to fall asleep in the geography classroom.

The geography instructor is under more than the usual necessity not only of presenting his material thoroughly and rapidly but also of making it interesting. Yet army discipline precludes his having much recourse to the familiar device of chatty informality. The cadet's own army-sanctioned device for keeping awake—one which he conscientiously employs—is going to an open window and standing. The instructor's devices for keeping the cadet awake are numerous. Perhaps the most important is interrupting his own lectures. Sometimes because of unavailability or insufficiency of study time on the part of the cadet, a portion of the work must be covered in lecture. Instructors soon adopt as a rule the army's suggestion that some break be made about every three minutes, and they endeavor to dispel the monotony of their remarks by passing over from

discussion to demonstration or by directing a question at the class. Lectures are supplemented by motion pictures, film strips, and slides.

It is a natural tendency for the men to feel that mathematics and physics will contribute most to their practical training as pilots. Since all have ambitions to become pilots, they tend to concentrate their efforts in those fields at the expense of geography, history, and English. Therefore, in geography it is necessary to point out frequently the practical implications of the material. This is least difficult in those parts of the course which consist of technical material of practical value. Maintenance of class interest and activity is most difficult when teaching material, which, in the eyes of the cadets, will not aid in flying an airplane or in winning the war.

The laboratory method has manifold advantages for the course. Laboratory time affords students the opportunity to use at first hand such demonstration equipment as globes, wall maps, spherical grids, planetaria, map projection apparatus, and so forth. It also affords time for the working of exercises with individualized assistance from the instructor. Some exercises are devoted to drill in locations, in the use of the atlas, in the interpretation of topographic maps and aerial photos, in the conversion of scales, in the use of planning charts, and so forth, while others are merely aids to the study of the text in all parts of the course.

The individual instructor is free and even encouraged to follow his own method of presentation, using such embellishments as his peculiar background makes possible. Yet conformality in the coverage of essential material is maintained through standardization of the course of study, laboratory exercises, and examinations.

The teacher's approach to his work and his success are both conditioned by the variations in ability and in morale among the various sections. Sections differ as widely in average ability and in group spirit as do individuals in ability and temperament. All army personnel are, of course, screened before entering any training program. In the Air Corps training program they are screened again and are sectioned largely on the basis of mathematical ability. As stated earlier there is an appreciable correlation between mathematical and geographical ability. The range of ability, however, in any one section remains about as wide as in the average college class. The group spirit of a section depends to a considerable extent on the character of the leaders and on whether the real leaders are the appointed leaders. The attitude of a section toward any class depends on its spirit, upon the time of the class in its daily schedule, and upon the state of morale of the entire training detachment. Morale fluctuates with the arrival of a new squadron, with departure of an old one, and with every one of the myriad rumors which are the conversational change of soldierdom.

Air Corps and Engineering Programs Compared

At Washington State College there is also an Army Specialized Training Program for basic and advanced engineers. Those in the basic are required to study geography—two hours a week for nine months. Though the Air Corps program traces all the way back to General Arnold, and the en-

gineering program quite separately back to General Somervell, it is interesting and gratifying to note their similarity of emphasis.

At the outset general backgrounds in physical geography are established in each instance. Maps, their construction, interpretations, and use, come in for special attention. Production and distribution of resources both agricultural and mineral, together with their trade and utilization are emphasized. The study of resources, trade, industries, and markets in relation to peoples, brings to light many sources of international friction which produce wars. In each program geography serves a dual purpose:

(1) It provides technical material which has practical value for the soldier.

(2) It aids in developing an insight into the reasons for war and the requirements for peace.

The Course For The Future

After World War I Germany utilized her geographers to find reasons for her defeat. They were employed furthermore to aid in preparing the nation for winning the next struggle. American geographers have some good ideas as to why we lost the peace. They also have sound ideas on how not to lose the next one.

Our army recognizes the importance of geographic thinking to the safety and security of the nation and to peaceful international relations. In view of the start that is being made in making one portion of our postwar citizenry, the ex-service men, geography conscious, it behooves all who are interested in the welfare of their country to ponder seriously the lessons which a study of world geography teaches:

1. The power of modern states is closely related to the natural resources they own or control.

2. No nation is self-sufficient in war or peace—trade is necessary.

3. Human geography is not static—it is ever changing. A nation to survive must anticipate the future—not live in the past. As technology changes, society changes.

4. We cannot live unto ourselves nor live only in our hemisphere—modern transportation makes us world citizens.

5. International friction can be lessened by knowledge of other peoples and their countries. Geography offers that knowledge.

6. While geography is useful to countries at war it is even more useful to countries at peace. We will one day find that a more abundant life is possible in many regions of our country when all factors of geography have been considered.

EDITORIAL

Juvenile Delinquency *and the* School Day

By CARL G. MILLER

THIS matter of juvenile delinquency is unfortunately still only in the stage of diagnosis. It is still a big subject for talk or a theme for a convention, but as Governor Langlie of the State of Washington said the other day, it can never be solved by writing about it in the newspapers. And, to follow up this thought, it may be said that the schools will never solve it by having the teachers just take courses on the subject. It is to be hoped that all members of the education profession are now convinced that juvenile delinquency is real and not a condition that some folks have imagined, for it was not long ago when a few educators could be found who were too optimistic regarding the virtues of youth and who smiled too smugly when the subject of juvenile delinquency was brought up for serious discussion.

Juvenile delinquency, of course, is a condition that evolves around the fundamental virtue of meeting one's responsibilities in life. Delinquent youth is irresponsible youth. But irresponsible youth in America today is the offspring of an irresponsible generation of adults. The latter group the other day didn't like very much the remarks of Secretary Stimson, when, referring to strikes and other topics pertaining to the conduct of the war, he accused many Americans of irresponsibility. Well, we educators all know that the principal cause of juvenile delinquency is parental irresponsibility. And Mr. Stimson was, to be sure, passing out what is called the bitter pill of truth.

All sorts of cures must be applied to juvenile delinquency before it ceases to be a problem, but one to which practical educators could give immediate attention and, with some support, carry out immediately, is a reconsideration of the length of the school day. For high schools and the upper grades, and possibly the lower grades, it probably should be considerably lengthened. But only under special conditions. The attractiveness of schools and their surroundings would have to be greatly increased in the direction of utility and beauty. The opportunities for play, games, intramural athletics, and interscholastic athletics would have to be expanded enormously. A really good system of supervised study would have to be established—one that is not too much of a strain on either the pupil or the teacher. Study outside of school hours would not be expected. The curriculum would have to be thoroughly taught, but at the same time an extracurricular program would have to be expanded and improved. The summer vacation would be reduced. The war would be over, and there would be little child labor. The schools would have to be manned by teachers who would be enthusiastic about a program that would make for the moral, mental, and physical development of Tom, Dick and Mary.

With such a school plan, boys and girls would have an eight-hour day much like most adults. During that time they would be under an interesting but supervised educational program and would be so constructively busy that they would not think of being destructively busy. They would be so well taken care of for a large part of the time that even the counter-acting destructive influence of certain parents, certain books, certain movies, and certain radio programs would not keep them from living pretty much as a decent young citizen should.

NEW RECORDS

Mozart: Concerto No. 12 in A Major for Piano and Orchestra. Louis Kentner, pianist, with Sir Thomas Beecham conducting the London Philharmonic Orchestra. Columbia. Set M-MM-544. Three 12-inch records. $3.50.

All of the charm and delicacy of the rococo period are summed up in this rather unfamiliar but lovely piano concerto by Mozart. In his book on Mozart, Eric Bloom comments on this concerto, calling it: "the most endearing of the whole collection, less grand or brilliant than others but a thing of imperishable charm." The work is both suave and gay and, in the present recording, Louis Kentner gives an unusually fine interpretation of the solo part. Without intruding in the piano parts, Sir Thomas Beecham provides a lacy, polished, and highly styled orchestral accompaniment. Balance and clarity throughout the work have been maintained so that the recording is an excellent piece of engineering. Mozart wrote the *Concerto No. 12* late in 1782 and the music aptly portrays the tastes and likes of the time. Louis Kentner is not too well known on this side of the Atlantic but his playing in this recording will build for him a fine reputation. The album will, without a doubt, find its place in many programs devoted to the history and appreciation of music and this because of the charm and beauty of the music and because of the fact that the *Concerto* is so representative of its period.

Coates: Cinderella (A Fantasy). Eric Coates conducting the London Philharmonic Orchestra. Columbia. Set X-239. Two 12-inch records.

Eric Coates is England's foremost composer of light music and his tremendous vogue was gained largely by his delightful *London Suite*. The familiar story of Cinderella has been retold by Coates in vivid musical tomes. In the beginning, she is pictured sitting alone by the fire. The call of the Fairy Godmother is heard, the attendants are summoned, and Cinderella is dressed and sent off to the palace, with the hoofbeats of the ponies represented in the orchestra as they draw the fairy coach. The scene at the ball is climaxed by a soaring waltz theme as the Prince and Cinderella dance together. This is interrupted by the gong striking twelve, Cinderella rushes off from the palace, leaving her slipper behind. A reappearance of the original theme again depicts the lonely girl at the fire. A fanfare, followed by a humorous little march, announces the arrival of the Prince and the climax of the piece is reached in the triumphant return of the waltz theme, which indicates that all lived happily ever after.

The performance by Eric Coates and the London Philharmonic is excellent and the album is especially appropriate for elementary school children who are just beginning to experience orchestral music as a mode of expression. Progressive teachers will be able to use these discs in many, many ways with their youngsters.

Oklahoma. Selections from the outstanding success of the New York Stage, with members of the original cast, conducted by Jay Blackton. Decca album 359. Six 10-inch records. $5.25.

The people who have been fortunate enough to have seen *Oklahoma* cannot find adjectives enough to praise this colorful production. Those who have not seen it had best write in and see if they cannot get tickets before 1944 is out. To be brief, *Oklahoma* is real American opera and a great experience. Here is an album with the Hammerstein-Richard Rodgers lyrics and music for every school library.

BOOK REVIEWS

American Negro Slave Revolts. By *Herbert Aptheker.* Columbia University Press, New York, 1943. 409 Pages, $4.50

American historians customarily look upon the slave rebellion of 1831 as an isolated phenomenon. It is true that more data have been gathered on the subject of this uprising led by Nat Turner in Virginia than on the numerous other slave conspiracies that characterized our slaveocracy from 1619 to 1865. Similar insurrections and plots—notably that of 1739 led by Cato, that of 1800 led by Gabriel, and that of 1822 led by Vesey—have been described by historians from time to time. However, there has been. and there still is, a notable lack of agreement, both in contemporary and secondary accounts, concerning the details of American Negro slave revolts and the importance of this manifestation of unrest in the course of American history. The author of this competent and magnificent document study holds that "there were few phases of antebellum Southern life and history that were not in some way influenced by the fear of, or the actual outbreak of, militant concerted slave action." It is pointed out that the fear of servile rebellion was widespread throughout the south and that the ruling class, in order to maintain its power, developed a very complex and thorough system of slave control in order to preserve the slaveocracy. Despite the existence, however, of the intricate machinery for exploitation and suppression, the Negro slaves, persistently resisted its creators and engaged in numerous plots and uprisings. The author has found records of approximately two hundred and fifty revolts and conspiracies in the history of American slavery. Almost any great event having the slightest bearing on the question of emancipation—the idea that the British crown has set all slaves in the colonies free, the notion that the Spaniards in Florida were ready to befriend the slaves, the repercussions of the uprisings in the West Indies, the election of Lincoln in 1860—was bound to result in unrest among the enslaved. Further causes for rebellion included such factors as the per cent of Negroes as compared to whites in a given area, and the relative increase of Negroes as compared to that of whites; industrialization and urbanization were phenomena that made the control of slaves more difficult; and economic depression, that brought increased hardships, sharpened tempers, and forced liquidation of estates and the attendant leasing of slaves. Dr. Aptheker's study is the first comprehensive study of an important and sadly neglected facet of American history. The material utilized is extremely well documented and arranged in such a fashion that the study reads like a popular treatment.—WILLIAM P. SEARS, New York University.

The Negro in Colonial America. By *Lorenzo Johnston Greene.* Columbia University Press. New York. 1942. 390 pages. $4.50.

Studies of the role of the Negro in American colonial life have, for the most part, dealt with the social, economic, and historical aspects of the plantation economy of the Southern colonies. Our knowledge of the part played by the Negro in the Puritan colonies has been very sketchy, to say the least. Professor Greene's study is really the first comprehensive of the Negro in Colonial New England. All of the New England colonies are covered in this study and the period embraced is one hundred and fifty years. The author considers the New England slave trade and the sale of Negroes in the slave markets. These topics are followed by a discussion of the social, political and economic repercussions of the buying and selling of slaves upon Puritan institutions. The study fills an important gap in our history—the social structure of Negro life in Colonial New England. — WILLIAM P. SEARS, New York University.

The Journal of Philip Vickers Fithian. Edited, with an Introduction, by *Hunter Dickinson Farish*. The Dietz Press, Richmond, Virginia. 1943. XLV and 323 pages. $4.00.

Here is one of the most revealing and charming journals of all times. It is a particularly valuable book for teachers of English and social studies to read and to recommend to their classes. The original edition of 1900 has long been out of print and this new edition has long been needed. It is the third volume in the important Williamsburg (Va.) Restoration Historical Studies series.

Philip Fithian, a young Princeton graduate, went to "Nomini Hall," the country seat of the Carter family, in 1773 as tutor of the children of the household. The young man spent a year at this great plantation and daily recorded his impressions of the varied activities of the busy estate. His Journal constitutes one of the delightful and important pictures of Virginia life in those years immediately preceding the War for Independance. The Carter family was a wealthy and influential one and, together with such families as the Lees, the Fauntleroys, and the Washingtons, played an important role in the life of the "Old Dominion" during the Golden Age. Fithian's comments on the economic life of a large plantation, on the mercantile interests of the planters, on trade, and on slavery give a clear-cut view of colonial economic life. His observations on social life—on the dances and balls, on barbecues and fish feasts, on horse races and cockfights as well as on religious matters and the intellectual pursuits of those with whom he came in contact—are extremely cogent and very helpful for anyone interested in colonial history to read. — WILLIAM P. SEARS, New York University.

The Electrical Crafts. By *William H. Johnson* and *Louis V. Newkirk*. The Macmillan Company. New York. 1943. 146 pages.

This is another in the splendid Industrial Arts Education Series prepared by Johnson and Newkirk. The content of this pupil text is based on an extensive study of the electrical industry, courses from progressive school systems, the report of the American Vocational Association on standards in industrial arts teaching, and research studies conducted under the direction of the authors for years. The intent of the book is to introduce young people to the field of electrical work. There are experiments, projects, and problems suited to a wide range of abilities. Informative drawings and excellent photographs supplement the text. The volume is ideal for the junior high school course in general electricity, although senior high school classes in industrial arts electricity will be able to use it, too.—WILLIAM P. SEARS. Associate Professor of Vocational Education, New York University.

This Machine Age. By *Esther Godshaw Clarke*. With the editorial collaboration of *M. E. Herriott*. Charles Scribner's Sons. New York. 1941. $2.00. 468 pages.

American society is today largely an industrial society and many progressive schools have, in recent years, been trying to acquaint boys and girls with the world in which they live. Today, as perhaps never before, when our great experiment in democracy is threatened both from within and without, it is imperative that our schools emphasize the rise of American civilization and point the way to the good life which underlies the American dream. *This Machine Age* presents topics dealing with the industrial history of both England and the United States. There are units on the development of business, agriculture, industry, transportation, communication, and other fields. The volume is competently written and undoubtedly will have an appeal for high school boys and girls. There are questions and suggested projects appended to each chapter and there are splendid bibliographies too. Each chapter also contains a table in which events of contemporary history are paralleled by events mentioned in the particular chapter.—WILLIAM P. SEARS, JR., New York University.